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"RACIAL" TENSIONS

editorial by John W. Campbell

Somebody said that "there's a great surplus of simple answers, and an acute shortage of simple problems to fit them."

One of the simple ways to make a problem insoluble is to assign it to a cause that has little or nothing to do with it. Endless time, effort, money, and goodwill expended on that assumed cause then results in increasing frustration, accumulating anger as promised relief doesn't materialize, and increasing hopelessness. And that combination is almost a perfect formula for explosions of violence.

Currently, the sociologists and social-psychologists are doing a remarkably lousy job of handling the problems facing the culture of the United States—and the problems of the rest of the world as well. I have a perfect right to make that statement, without having to have any knowledge whatever of the subjects myself. If a man claims to be an automobile mechanic, and can't make your immobilized car operate —you have pragmatic reason to say he's a lousy automobile mechanic. He may protest that you can't fix it either—but the difference is, you didn't claim you could, and didn't demand money, time, and status while you failed.

At the point where the "professionals" fail, the amateurs might as well try seeing if they can spot any loose wires, drooping hoses, missing bolts, or puddles of assorted vital juices leaking onto the floor.

One thing that seems like a case of loose wires and leaking vital juices to me—the professionals don't seem to have paid any attention to it—is the clear and present evidence that race, in the commonly used sense, has very nearly zero relation to what are known as "racial" tensions, and the "racial" violence explosions and riots.

This heresy is based on observational data that does not correlate worth a damn with any "racial" differences in the violent riots.

Let's list a few instances:

1. At the moment of writing this, the "racial" tensions in Belfast and Londonderry have caused more deaths than any of the "racial" tensions in Newark, Detroit, or Los Angeles. Considering that the available capital investment open for destruction in Belfast is enor-

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mously less than that available for attack in Los Angeles, the riot in Northern Ireland was considerably more destructive.

In the extremely violent, lethal and destructive Irish riots, the "racial" tensions involved Irishmen on both sides. An Ulsterman is just as Irish as a man of County Clare, or Dublin.

The civil war there is not based on skin, or hair color, or "race" by any of the usual standards.

2. A few years back, the violence that erupted in Korea was a civil war between Koreans and Koreans. When the shemozzle reached an intolerable level of violence, outsiders came in to try to cool the riot somewhat. That wound up with a North-South separation, and a tense, constantly growling border.

3. Then there was the civil war in Vietnam. That also reached an intolerable level of violence and mutual murder, with Vietnamese happily murdering Vietnamese on a mass-production basis. The Great Powers cooled that one off —for a while!—by setting up a North-South separation, and a "neutral" zone.

The Vietnamese have been warring with each other ever since. The "racial" tensions seem to be somewhat difficult to quiet down. There is no difference of skin color, or hair color, and no other differentiation of the types usually labeled "race" difference.

4. The murderous mutual mayhem situation in the Near East is another "racial" tension situation. Jews and Arabs are both Semites, representatives of the same genetic stock, claiming the same historical origins.

5. We really should include the Indian violence that exploded in millions of murders when the British withdrew from India, and left the native inhabitants to their fate. The fate they promptly chose was murder.

That finally wound up with another North-South separation, and a growling, explosive borderline. Instead of calling it North India and South India, they call it Pakistan and India—but the idea's the same.

6. And speaking of North and South separations—a hundred years ago, the United States had the same sort of shemozzle. The Blacks had nothing to do with the thing—*they* weren't doing the fighting, it was a war between "WASPs" on both sides.

In view of this—and a lot more, if you want to bother to look. Take France a few centuries ago, for instance!—evidence, the next guy who talks to me about "race" tensions in this country gets a horselaugh from me. Anyone who says the problem is the simple black and white problem of race difference is out of is mind.

For one thing, note the number

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of Blacks who are on the White side, and the number of Whites on the Black side.

Skin color has no more to do with the violence in this country than it does in Ireland, Korea, Vietnam, the Near East—or, if you're not bored by the list, we can add Crete, the Congo, Nigeria, Zambia. These modern ones are pretty tame, actually; most of them have led to only a few hundred thousand deaths—hardly important in a modern population. They did things in a more enthusiastic way—and there was less interference by outside powers trying to cool the riot—a few centuries back. The French civil war —the English civil war.

Skin color and "race" in the usual sense has about as much to do with the "racial" tension riots as does the positions of the planets. I won't state categorically that it's zero in either case—but it's clearly a damn sight less important than the Authorities On The Subject say it is.

Now inasmuch as a man's skin color is somewhat difficult to change, assigning that as the Critical Factor means you've assigned the problem to a cause that obviously can't be altered. Therefore, we're helpless, and the Authorities' failure to get any results is not their fault—if they hadn't denied God, they could blame it all on Him.

But if it isn't "racial" tensions—what is it?

Well, the Irish say the Important Difference between Them and Us is that Them is Protestant, and Us is Catholic. The Irish-American organizations insist that it's really the British the Irish Catholics in Belfast were fighting, not other Irishmen.

There's a bit of semantic confusion involved here, since the old Irish term "sassenach," referring to the despised and hated British, originally meant "Protestant." Thus if the Irish Catholics of Belfast are fighting the "sassenach," they're fighting "British-Protestant."

A major part of the problem in Vietnam is precisely the same. Millions of Vietnamese who lived in the north originally fled to the south, because they were Catholics, and wanted no part of the godless Communist philosophy. South Vietnam is split partly because of Catholics in the South, and non-Catholics in the North—like Ireland.

In India, the problem was Muslim vs. Hindu.

In the Near East, it appears to be Muslim vs. Jew. (That's not the proper differentiation, but it *appears* to be the cause of the riots.)

Religion is actually relatively minor, an expression of something much deeper. A man's religion he chooses on the basis of a personal, inner philosophy of life; he chooses

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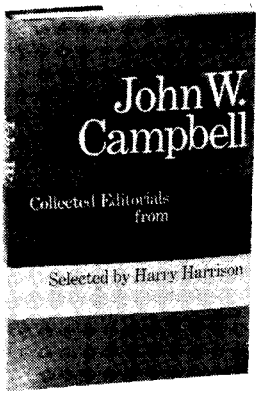

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a religion that accords with that deeper, usually wordless, pattern of metaphysical beliefs. In a true sense, the active atheist is just as "religious" as the ardent Deist; he, too, is expressing a philosophical-metaphysical belief as to the Nature of Things. And remember that the word "religion" stems from the Latin *res legis*—"the laws of things," or "the rules of things."

We've also had riots and civil disturbance due to the hippie types, who insist on "doing their thing" —i.e., practicing their particular philosophy of "the proper rules of things."

The most clear-cut case of non "racial" violence is the Semitic civil war known as the Arab-Jewish conflict.

The Semitic peoples claim a common religious heritage—up to the time of Muhammad. Both peoples stem from the same racial stock. But the Arabs remained in the desert countries, where the religious philosophy of Muhammad —developed by a desert-dweller, for desert-dwellers—was reasonably practical. They maintained it.

The Jews, dispersed across the world by various military, social, and economic pressures, altered their philosophy because it was not practical to maintain the old semi-nomad, semi-city-dweller philosophy of the Old Testament writers.

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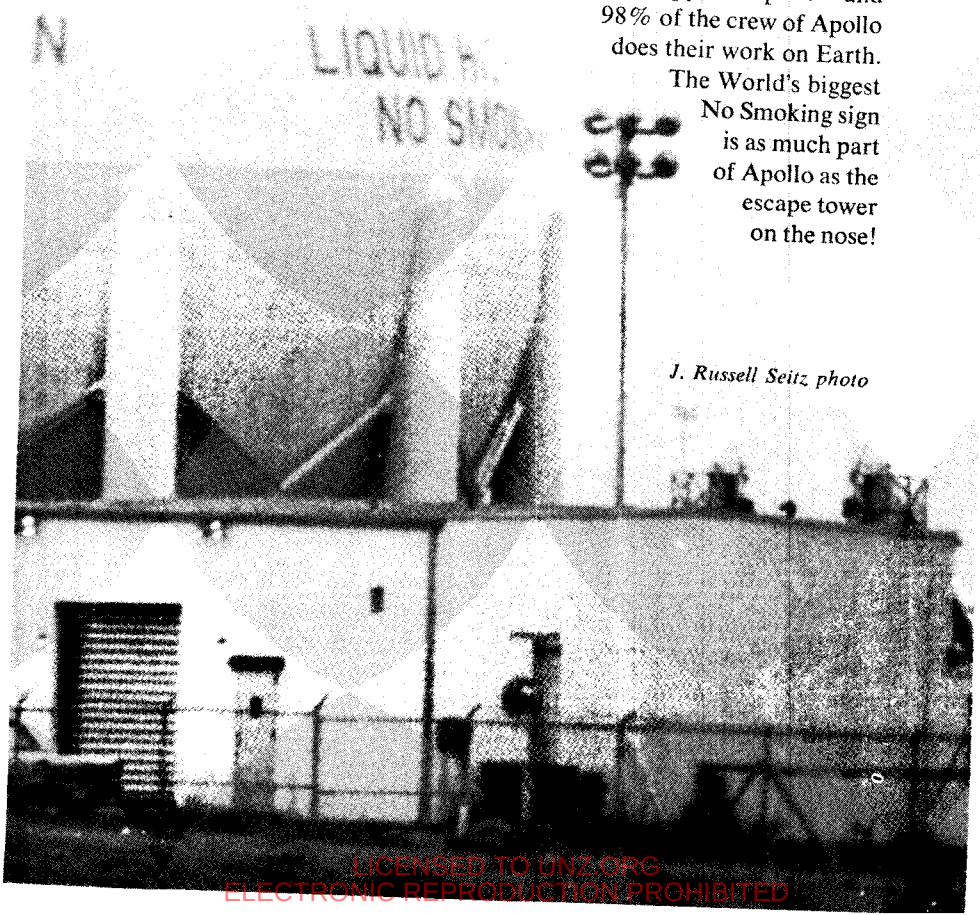
WHAT SUPPORTS APOLLO?

J. RUSSELL SEITZ
and BEN BOVA

It isn't just a rush of hot gas that supports Apollo—and 98% of the crew of Apollo does their work on Earth. The World's biggest No Smoking sign is as much part of Apollo as the escape tower on the nose!



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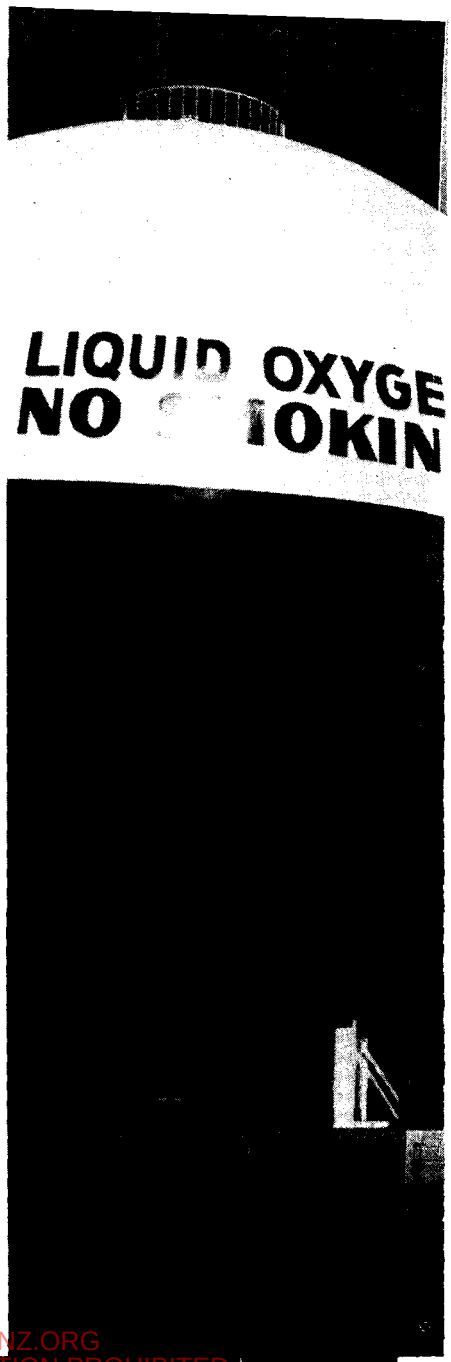
The world's largest NO SMOKING signs—easily ten feet high by 100 feet long—adorn a pair of huge spherical tanks at Launch Complex 39, Kennedy Space Center, the world's first Moonport.

The tanks are 200 feet in diameter. They hold 3,410,000 liters of liquid oxygen and 3,200,000 liters of liquid hydrogen, respectively. That's 8,550,000 pounds of liquid oxygen; 4,275 tons of it at −297.4°F (−183°C). Hydrogen, of course, weighs much less. There's only 476,000 pounds of it in its tank. But its temperature must be kept much lower: −423°F, or −252.8°C, only 20.3°C above absolute zero.

Big numbers are seldom impressive in themselves, especially when they come as often as they do around Launch Complex 39. But the sheer immensity of the Apollo mission is something you really can't appreciate until you've stared at the Brobdingnagian proportions of the hardware this side of Tranquility Base.



Kennedy Space Center, Fla. The mobile service structure, atop the transporter at right, slowly moves down ramp at Launch Complex 39A, leaving the Apollo 11 Saturn V space vehicle and its mobile launcher alone during a recent Countdown Demonstration Test or dress rehearsal for launch. In the foreground is the 900,000 gallon liquid oxygen storage tank which services the launch vehicle.

NASA

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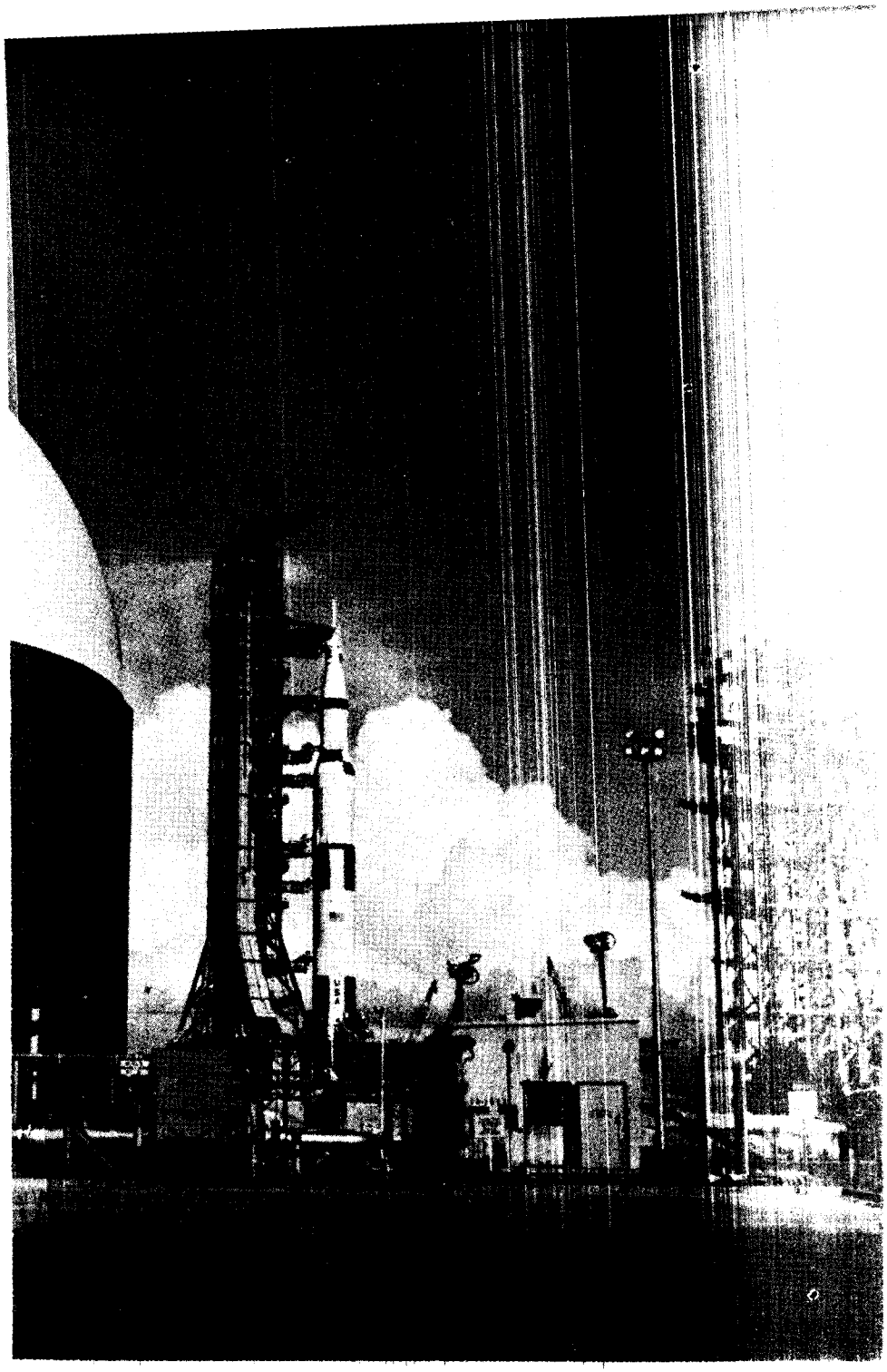

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This is something that even the best science-fiction stories have seldom conveyed: the *size* of everything. Putting a pair of men on the Moon takes not only a giant rocket booster, it requires enough ground-based hardware, plumbing, concrete and steel to produce a fair-sized city. And despite all the years of gabble about micro-miniaturized electronics, nothing about Moonport is small. Launch Complex 39 is truly the Land of the Giants.

The Complex starts with the Vehicle Assembly Building (VAB), which is nothing less than the world's largest structure. The VAB is 716 feet long and 518 feet wide, with a total floor space of 343,500 square feet. It's divided into two main working spaces, called the "high bay" area and the "low bay" area: 525 feet and 210 feet high, respectively. Its total volume is 129,482,000 cubic feet. No enclosed space built by man is larger.

You could slide the *Queen Mary* into the VAB and stand her crossways from one corner of the floor to the diagonally opposite corner of the ceiling. And still have plenty of room for stacking three more ocean liners into the remaining three sets of corners. You could fit half a dozen Pan American Buildings into the VAB, or a squadron of *Hindenburg* dirigibles. You could play two football games comfortably side by side on its floor, and if you put up a few more floors at various heights, you could probably squeeze the entire National Football League's weekly schedule of games into the VAB, with all the teams playing simultaneously.

What NASA really does in the VAB is exactly what the name implies: here the three stages of the Saturn V launch vehicle are brought together and mated with the Apollo modules. The high bay can easily accommodate two complete, 363-foot-tall Saturn/Apollo vehicles. In the low bay area, single stages are checked out and prepared for mating, then moved out to the high bay area.

On Tuesday, July 15th, the day before the Apollo 11 launch, engineers and technicians were working in the low bay area on the rocket stages of the Saturn V boosters for the Apollo 12 and 13 missions. A half-dozen technicians were standing inside the mammoth bell of a single rocket nozzle at one point in the day.

The high bay area was almost empty. Nothing but fifty house trailers and a hundred or so automobiles parked on its floor, and a few thousand visitors gawking around. All these occupied maybe five percent of the floor space.

NASA had spotted various pieces of hardware here and there for the benefit of the tourists. One of them was a hold-down clamp, 6 x 9 feet at the base and 10 feet

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long. Made of a single casting of maraging steel—tensile strength 300,009, psi—the clamp weighs 20 tons. Its job is to keep the Saturn V booster securely tied to the launch stand despite her 7.6 million pounds of thrust, until the exact moment for liftoff arrives. Needless to say, there is more than one hold-down clamp on the launch pad. The clamps are the largest single castings of maraging steel ever made.

It takes about a half hour to walk the complete circuit around the floor of the VAB. Then you start your way upstairs.

There are five work platform levels in the high bay area. Each of them is three stories tall. They can be extended to wrap completely around the rocket booster at various levels. When you get to the highest level, you feel that you could stage parachute-jumping contests in the VAB. Certainly you could spend an afternoon of stunt flying in a light plane inside the building.

The various offices, laboratories, workshops and platforms of the VAB are cooled by an air-conditioning system that handles more than 10,000 tons of air, more than enough for 3,000 homes. And the building consumes enough electrical power to light up almost any town in the United States.

The VAB structure weighs more than 60,000 tons. Empty. To keep this building from sinking into the Florida sands—which are seldom more than a foot or so above sea level—the VAB was built on an underpinning of 4,225 steel pilings, each sixteen inches in diameter, which were sunk some 150 feet down to bedrock.

Adjacent to the VAB is the Launch Control Center (LCC), where the Apollo launches are directed. There are actually three separate launch control rooms, each equipped with some 450 consoles that control the final checkout and countdown of the Saturn V booster and its Apollo spacecraft. More information flows through these consoles through the twenty-eight hours of countdown than was amassed by all the scientists of the last century.

Sixty television cameras are spotted around the launch pad, transmitting pictures to the LCC and the men who work there. Some of their views were shown on commercial television broadcasts during the actual launch of Apollo 11.

When the Saturn/Apollo is assembled in the high bay area of the VAB, the vehicle is actually standing on its launching platform. This is a two-story-high steel structure called the Mobile Launcher, which is the base that carries the rocket vehicle and the 398-foot-tall umbilical tower. The Mobile Launcher is carried out to the launch pad with the rocket and tower on it.

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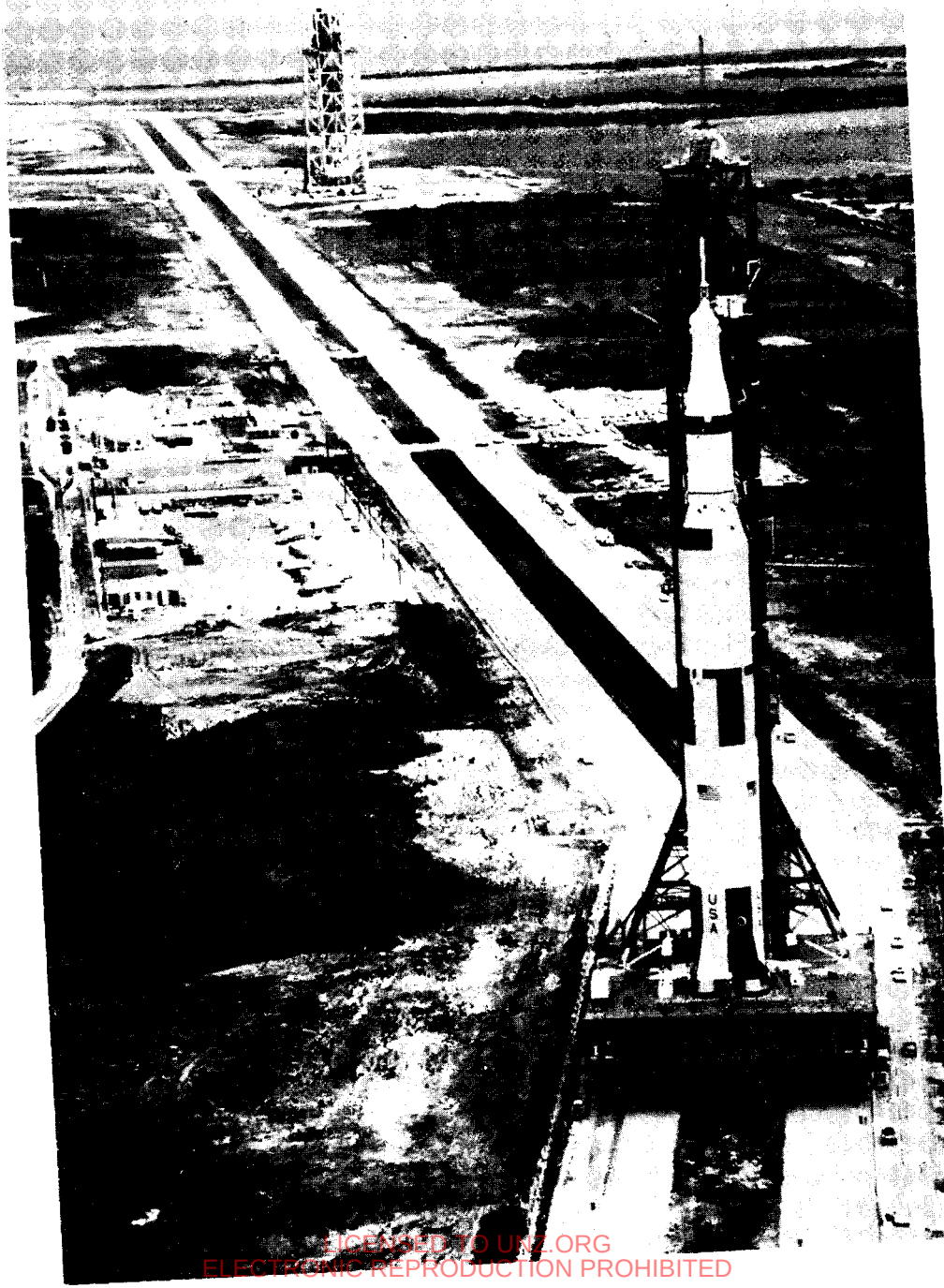

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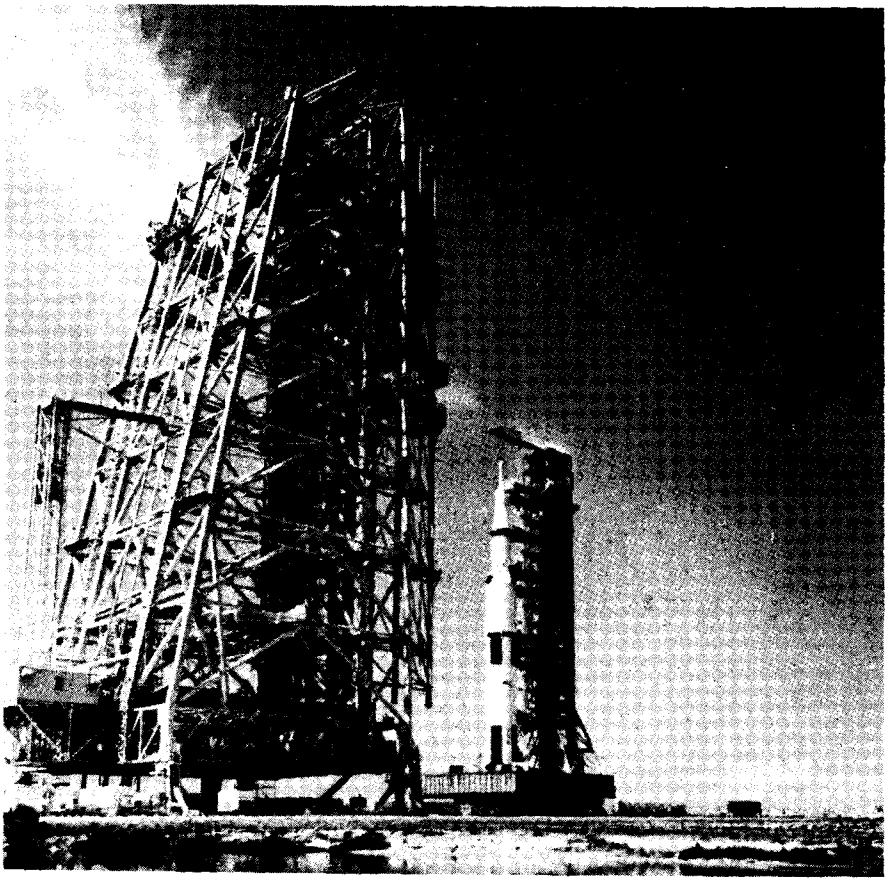

The Mobile Launcher is roughly the size of the main building of the White House. Its base covers half an acre. Built of 6,000 tons of steel, it must bear not only the weight of the fully-fueled Saturn V but must stand up to its takeoff

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Kennedy Space Center, Fla. The Apollo 11 space vehicle is shown on the Crawlerway on its way to Launch Complex 39A in preparation for the National Aeronautics and Space Administration's Lunar Landing Mission. The transporter started the rollout of the Saturn V/Apollo and mobile launcher at 12:30 p.m., and at a snail's pace of one mile per hour arrived atop the launch complex at 6:30 p.m. with the 363 feet tall space vehicle.

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blast as well. Even more: the launcher is designed to withstand the force of the Saturn falling back onto it, if the engines are shut off before the rocket vehicle clears the launch stand.

In the middle of the Launcher is a 45-foot-square opening, through which the Saturn V's rocket engines bellow their flames. The opening is lined with a replaceable steel blast shield (and it needs to be replaced after each shot) and cooled by tons of water spray.

The umbilical tower has nine service platforms that enwrap the Saturn/Apollo at various levels and allow the technicians to work on the vehicle. The topmost arm, at the 320-foot altitude, provides access to the Apollo Command Module for the three-man crew and their support technicians and medical men.

If the usually-flawless Saturn rocket should develop troubles just prior to launch, the crew of astronauts can get to safety fast in a pair of 600-foot-per-minute elevators and a slide-wire and cab. Buried beneath the launch pad is a blast shelter. There are also armored personnel carriers standing beside the Launcher, ready to zip away to a bunker 2,200 feet from the launch site.

To carry the rocket vehicle and its Mobile Launcher from the VAB to the launch pad, a distance of 3.5 miles, the world's unlikeliest and ungainliest-looking vehicle is used. This is the 3,000-ton Transporter.

The Transporter is 131 feet long and 114 feet wide at its base. Its top, where it mates with the bottom of the Mobile Launcher, is big enough to handle a baseball infield. It moves on four double-decked caterpiller-type treads; each set on a bogey assembly that's 10 feet high and 40 feet long. Each shoe of the tread is more than seven feet long and weighs a ton.

This squat, square, solid beast is straight out of the Mesozoic Age, a mammoth steel dinosaur that lumbers up and down the road between the VAB and the launch pad at a maximum speed of two miles per hour. When fully loaded with the empty Saturn/Apollo and Mobile Launcher, top speed goes down to one mile per hour.

To carry more than 6,000 tons of dead weight—twice its own weight, incidentally—the Transporter is driven by 16 electrical motors, which in turn are powered by four 1,000-kilowatt diesel-electric generators. Two additional 750-kilowatt diesel-electrics power the cranes, jacks, steering, lighting, ventilating and electronic gear aboard. There are two completely-enclosed operator's compartments, one fore and one aft. The Transporter does *not* make U-turns.

It took about six hours for the Transporter to lug Apollo 11 and its Saturn V booster and the Mo-

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bile Launcher out to Pad A of Complex 39. That's considerably less than top speed, even for the Transporter. But with such a precious cargo aboard, nobody wanted to risk daredevil driving.

The Transporter has to come in under the Mobile Launcher's platform, in the VAB, lift the whole assembly off the ground, carry it 3.5 miles to the launch area, up a five-percent slope to the launch pad itself, and then lower it gently onto the pad's waiting pedestals. It has a leveling system built into it so that it can do all this without tilting the tall Saturn or the umbilical tower more than 10 arc-minutes from true vertical. That's a sixth of a degree, or about the diameter of a basketball, measured at the top of the rocket vehicle.

Once it has deposited this 6,000-ton load onto the launch pad, the Transporter backs away down the road about 7,000 feet and picks up the 402-foot-tall Mobile Service Tower. This weighs only 4,900 tons, so it's a relatively easy job for the Transporter.

The Tower has five work platforms, all of which can be adjusted to various heights for work on the launch rocket or spacecraft. About 11 hours before launch, the Transporter carries the Mobile Tower back to its parking area. All further work on the Saturn/Apollo must be done from the umbilical tower from that time on. Finally the Transporter lumbers back to its own parking area—a lot big enough to handle nearly 500 cars.

The road between the VAB and the launch pad is called the crawlerway, for obvious reasons. It's about as wide as an eight-lane superhighway—131 feet across—and even has a dividing strip down the middle. But it's strictly a one-way, one vehicle road. And the speed limit is two miles per hour, tops. Part of the material that was used to make the crawlerway was scooped from the ground nearby, leaving a fair-sized lake. On the far side of this lake stand the special stands built for visitors and newsmen who witnessed the launch.

For all its size and the enormous loads it carries, the Transporter leaves no visible tracks on the crawlerway road. Its caterpillar treads distribute the load so well that it does less damage to the road than an Army light tank would do.

Launch Complex 39 has two launch pads, poetically named Pad A and Pad B. Each is roughly octagonal in shape and covers about a quarter of a square mile. Pad A was used for the Apollo 11 launch.

At the center of the pad is the hardstand, atop a 48-foot-high man-made hill. On this stand rests the Mobile Launcher, the umbilical tower, the Mobile Service Tower—and, oh yes, the Saturn/Apollo. By launch time this comes to a total weight somewhere in the neighborhood of 10,000 tons.

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Remember those 200-foot-diameter LOX and liquid hydrogen storage tanks? Together with the first-stage fuel storage tanks they're spotted along the perimeter of the launch pads. The first-stage fuel is RP-1, a high grade of kerosene. It's stored in three 325,000 liter tanks.

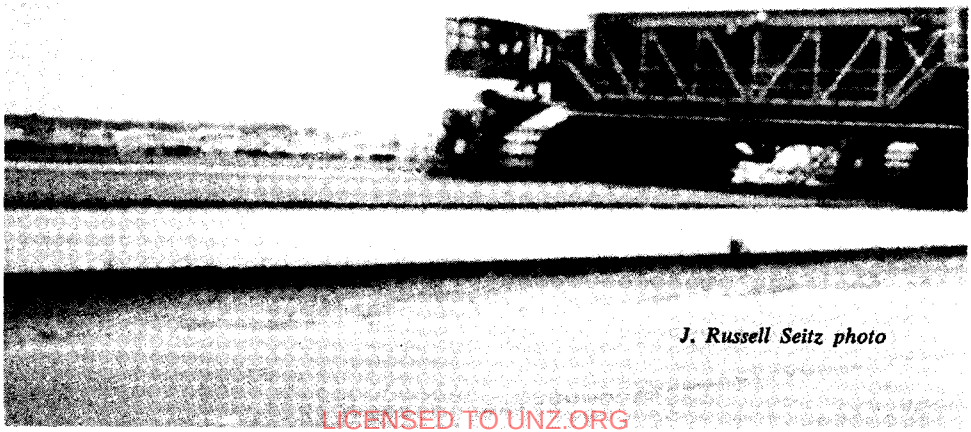
Stainless steel vacuum-jacketed pipes are used to carry the liquid oxygen from the storage tanks to the waiting rocket. Driven by a 320 psi pump, the LOX can be delivered at rates up to 37,500 liters per minute.

The RP-1 is pumped aboard the Saturn's first stage at 7,600 liters per minute, maximum. The liquid hydrogen used in the second and third stage engines goes through 1,500 feet of 10-inch vaccum-jacketed invar pipe at a maximum rate of 37,500 liters per minute. A conventional pump wouldn't be able to handle the ultra-cold cryogenic hydrogen, so a vaporizing heat exchanger pressurizes the storage tank to drive the liquid hydrogen through the pipe.

The various pneumatic and purging systems around the pad use 90,000 kg of liquid nitrogen and 30,000 kg of helium. That's merely to flush out the storage tanks and piping during and after the propellant loading operations. There's also a good-sized town's worth of electrical equipment, pumps, motors, and plumbing scattered around the pad.

Leading from the center of the hardstand is a 58-foot-wide trench that's been flame-blackened to the point where not even the stubborn Florida scrub tries to take root. A half-mile away from the pad stands the perimeter wire fence. All along that path, up to the fence and past it, the ground is permanently scorched. The fence itself is blackened on the side that faces Saturn's fierce exhaust.

The crawler en route to pick up another few kilotons of equipment.



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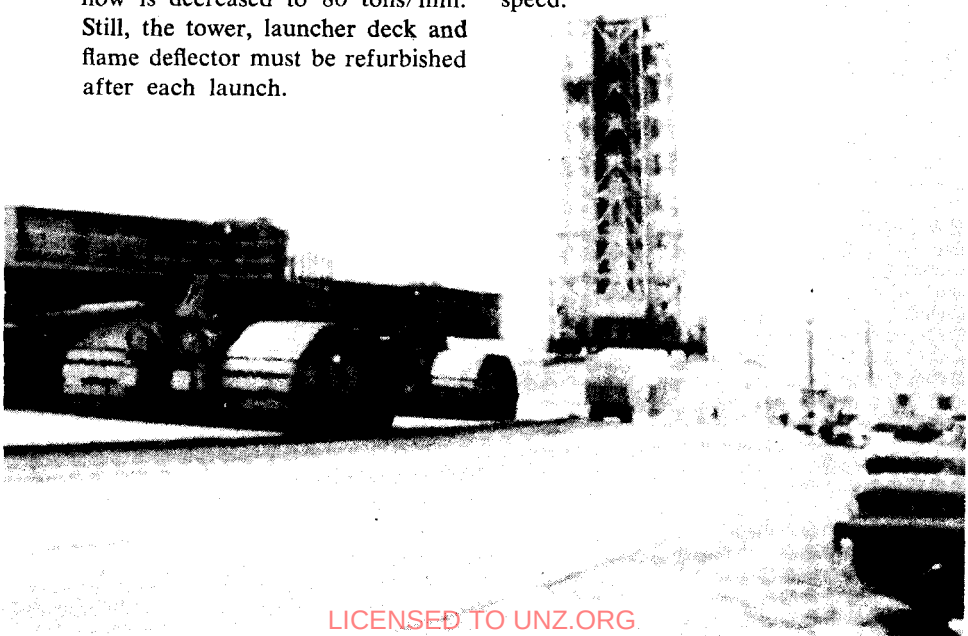
Connecting the flame trench to the hardstand is the elbow-shaped rocket flame deflector. It is built of steel, covered with a 4.5-inch-thick layer of refractory concrete mixed with volcanic ash. When Saturn's engines roar, about three-quarters of an inch of this heat-resistant stuff is boiled away within a few seconds. The flame deflector weighs 6,500 tons.

To prevent the hot breath of those rocket engines from melting most of Complex 39 during launch, 3,750,000 liters of water—about 4,000 tons—is sprayed over the Mobile Launcher, the umbilical tower, the flame deflector and the flame trench. On the Mobile Launcher, for example, 29 water nozzles start spraying at a rate of 200 tons per minute immediately after lift-off. After 30 seconds the flow is decreased to 80 tons/min. Still, the tower, launcher deck and flame deflector must be refurbished after each launch.

There's also a special water spray system that deluges the emergency escape routes that the astronauts would take in case of trouble.

Launch activity actually begins five days before the real countdown. By the time the countdown is started, at T-28 hours, the Saturn/Apollo is standing on the pad surrounded by the umbilical and service towers.

At T-8 hours, 15 minutes, propellant loading begins. It takes nearly five hours to complete the job of pumping the RP-1, LOX, and liquid hydrogen into the Saturn's three stages. The first stage takes 1.3 million liters of liquid oxygen. Even pumping at full capacity of 37,500 liters per minute it would take more than a half hour to fill those mammoth tanks. And pumping cryogenic propellants is seldom done at anything approaching full speed.



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J. Russell Seitz photo

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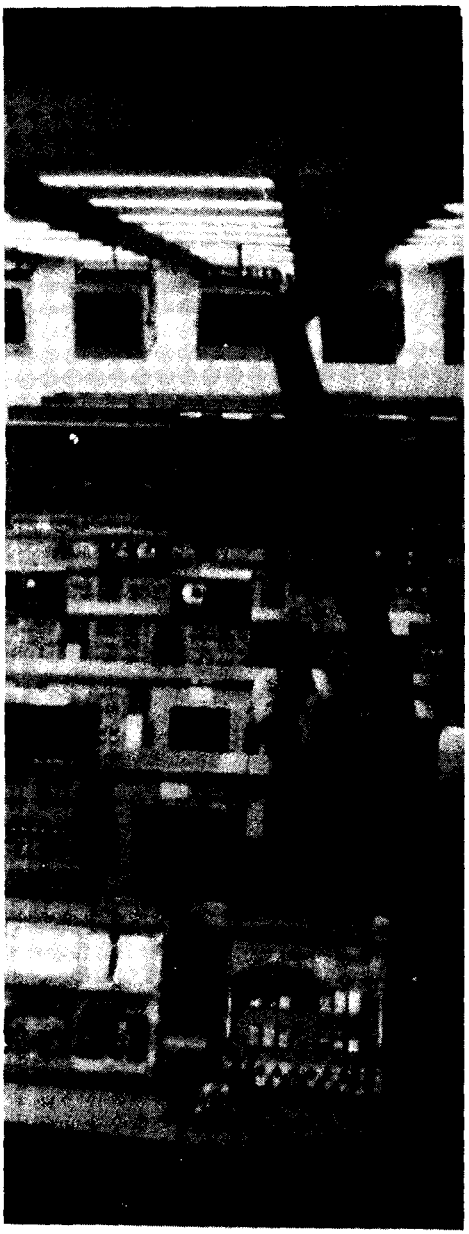

The sizes, weights, propellants and thrust ratings for the three Saturn stages are as follows:

First Stage (S-IC)
Height: 138 feet
Diameter: 33 feet
Empty Weight: 288,750 lbs.
Fueled Weight: 5,022,674 lbs.
Propellants: Liquid oxygen, 3,-307,855 lbs. (346,374 gals.) RP-1, 1,426,069 lbs. (212,846 gals.)
Engines: five F-1
Thrust: 7,653,854 lbs. at liftoff

Second Stage (S-II)
Height: 81.5 feet
Diameter: 33 feet
Empty Weight: 79,918 lbs.
Fueled Weight: 1,059,171 lbs.
Propellants: liquid oxygen, 821,-022 lbs. (85,973 gals.) liquid hydrogen, 158,221 lbs. (282,-555 gals.)
Engines: five J-2
Thrust: 1,120,216 to 1,157,707 lbs.

Third Stage (S-IVB)
Height: 58.3 feet
Diameter: 21.7 feet
Empty Weight: 25,000 lbs.
Fueled Weight 260,523 lbs.
Propellants: liquid oxygen, 192,-023 lbs. (20,107 gals.) liquid hydrogen, 43,500 lbs. (77,680 gals.)

Launch control at Cape Kennedy. Every possible function is monitored by engineers. There are only three trained experts aboard Apollo—but the rest of the crew of Apollo sits here!

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Engine: one J-2
Thrust: 178,161 to 203,779 lbs.

The rocket booster, the launch complex, the VAB, these are only some of the things that support Apollo. The obvious, gigantic chunks of hardware that strike the eye when you visit the Kennedy Space Center. Nobody's had the nerve—or time—to calculate how many thousands of miles of wiring weave Complex 39 together. Or how many miles of plumbing, how many pumps, air conditioners, motors, trucks, hard hats, et cetera.

Then there's the Mission Control Center, linked electronically to Complex 39 from Houston. And the world-wide tracking network, including four ocean-going Apollo instrumentation ships named, appropriately, the *Vanguard, Redstone, Mercury* and *Huntsville.* And eight Apollo instrumentation aircraft, specially-modified KC-135's, which help to track and communicate with the spacecraft. And the recovery task force.

Nor have we talked about how Apollo has changed the Cape Kennedy area of Florida, the Huntsville area of Alabama, Houston, Boston, and many other parts of the country. During the week of the Apollo 11 launch, towns like Cocoa Beach looked like goldrush boomtowns, with cheeseburger plates going for $4.00 and up, fifteen people sleeping in a room, rental cars being obtained by bribing the girls behind the counter with an early bottle of celebration champagne, cars and trailers parked solid for dozens of miles around the Kennedy Space Center, with three million visitors from senators to science-fiction writers pouring in to watch mankind's finest moment.

But before we get too self-congratulatory, we should remember a calculation that Arthur C. Clarke made several years ago.

The actual cost of taking a man to the Moon, Clarke figured, is $20. That is, it takes about 1,000 kilowatt-hours of energy to lift an average-sized man out of the Earth's gravitational field. A 60-horsepower motor could produce that much in twenty-four hours' running time. One thousand kilowatt-hours, at today's prices for electrical energy, costs roughly $20.

So, Clarke pointed out, the fact that it cost us more like $20 *billion* is an indication of how much room we have for improvement in efficiency!

Those improvements will come. Already the Rover nuclear rocket engine has passed its first series of ground tests. But, for a long time to come, the mammoth hardware that supports Apollo is going to be the order of the day, and space exploration will continue to be a realm of giants. ■

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THE WILD BLUE YONDER

It may be possible to start science off on a new track with something less than a nuclear bomb—but nothing much less!

ROBERT CHILSON
Illustrated by Vincent DiFate

On September 12, 1973, the Shawnee Bend mine at Shadyside, Kentucky, erupted. It was ten o'clock at night and few people actually saw the explosion. The blast, however, was distinctly felt in the town, some ten miles away; the shock still more distinctly. No damage was done in the small town and the flash was not visible there. There were only a dozen houses, some little better than shanties, within a three-mile radius of the abandoned mine, and here considerable damage was done, both by blast and shock. The shock was the worst. There were a number of injuries from flying glass splinters, and one house was gutted by fire started by a kerosene lamp overturned by the shock, but no serious injuries.

Nearly every family within a ten-mile radius north of the mine and of the mountain into which it tunneled went out into their yard to see what had happened. What they saw was a towering thunderhead of black smoke and dust, plainly revealed in the moonlight. From some views and from farther away it was silhouetted against the mountain and was not so clear.

John Crawford's family was watching "Garden of Flowers" on TV when it happened. "We didn't know what it was at first," he later said. "We went out and looked and saw what looked like a big cloud. It didn't look like a bomb cloud —you know, a mushroom—because the bottom was hidden; you couldn't see it against the mountain behind. And the moon was behind the cloud, too, so you couldn't see the face of it too good. But you could tell it was kind of falling and shifting, even while it was still boiling up behind. We all knew right off it was no ordinary cloud, that it was smoke, real heavy coal smoke, or some-

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thing. When someone on the phone said it was dust, that explained how it kept falling and dropping around the edges; smoke doesn't act like that and it bothered me."

Mr. Crawford had a direct view up Shawnee Hollow, but it didn't, at first, occur to him that what he saw originated on the north side of the mountain.

"No, I thought they'd bombed Sunnyside, other side of the mountain, by mistake," he said. "But the party line said nobody in Sunnyside even knew about it."

Elmer Hardin, resident State trooper, took command of the party line about thirty minutes after the blast. Calling families by name from a large circle around the town, he asked for an estimate of distance and direction of the cloud from each, also a statement of the severity of shock and blast, and rapidly assembled a picture of the location of the disaster.

"I was as much in the dark about what it was as anyone," he said. "Everybody was guessing and it was getting pretty wild. But after a little bit, no more news was coming in, and some of them sounded like they were getting worried. But I couldn't tell from what they said where it was. We all thought it was on the other side of the mountain, but when I called Sunnyside on the outside line, they were all asleep. So I asked everybody where it looked like it was from their places. No, we never bothered with maps; fast as the news came in, we put it together in our heads."

John Crawford, as the picture was assembled, told his wife to start brewing coffee. "We live nearest to the Shawnee Bend Bridge and I knew Elm and a lot of the men would soon be here. Junior and I" —his eldest son—"got out the pickup, figuring we could make a quick trip up the hollow and be back by the time they got here. Luckily it hadn't rained recently, so the hollow road was not much trouble."

This muddy, rutted lane is the usual means of access to the hollow. In bad weather the postman simply leaves the mail with Mr. Crawford. Four miles up this road, they turned off to go to the aid of the McWilliamses, whose house was visibly burning. The dust here was so thick they had to drive with unusual caution.

"When we were on the McWilliams's road," said Mr. Crawford, "Junior pointed and said, 'Look over there.' It was a car over by the mountain, not far from the crater—the mine. Neither of us knew then it was the mine that went up. We couldn't tell just where it was. The hollow twists around a lot, and there're roads and houses strung out all over it. We didn't give it much thought."

At the Blue Moon Café, a lunch counter/poolroom/bar, the usual group of idlers had a good view of the dust cloud. Unlike most of the

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nearby houses, it was not down in the bottoms. A number of the men there were waiting to join contingents of the posse as they passed the café; it was located near a road junction.

"We were outside, watching the cloud and looking for the headlights," said Mr. Wentz, who owns the Blue Moon. "Somebody spotted the lights of the cars—about twenty, it looked like, only it wasn't so many. Then I noticed some more lights when I looked back at the cloud. They were on this side of it, crawling around the mountain, going away from the cloud. Couldn't figure out at first where they were until I remembered the old county road. It runs along the side of the mountain and dips down at the head of each hollow. But whoever it was was taking that road like he was tired of living. It never was more than a wagon track, but he was really moving.

"I pointed at the lights and said 'Look at that idiot fly!' Everybody looked, and someone else remembered the old road, and I said, 'But why's he running away from it?' Someone said, 'Maybe he *knows* something', and everybody laughed, you know, but it made us think. We'd heard all that wild stuff on the party line, but we never really thought it would be anything like an atomic bomb. We were pretty nervous when we set out with the rest."

It is twenty miles by road from the Blue Moon to the mine, and that contingent of the posse was the last to get under way; others had not waited to assemble, planning on meeting at the Crawford home. Thus it was an hour and fifteen or twenty minutes after the blast that they saw the lights on the old county road. That tallies well with the time the Crawfords saw the lights, but indicates the fantastic speed of the car, considering the state of the road—thirty or even forty miles per hour.

The first contingent of the posse reached the McWilliams home half an hour after Mr. Crawford. By then there was little to do; the fire was nearly out. They went cautiously deeper into the dust cloud, still uncertain as to the actual center. Mr. Hardin kept detaching small groups from his force to investigate every dwelling in the hollow above the Shawnee Bend Bridge, as the phone line did not extend up the hollow and they did not know what damage might have been done.

"That dust was bad stuff," recalls Carl Gordon, a retired farmer who had been a miner in his youth. "It was mostly coal dust, seemed like. Dirt, too, but you couldn't taste it like you could the coal. I've seen men dying from breathing coal dust, and it worried me all the time I was up in the hollow. But it was funny, too. The coal companies still owned all that coal, even after they quit mining; then they started

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coming back with bulldozers and shovels to get it. The Shawnee Hollow coal was due to be stripped out in seven or eight years. We were all laughing about it, figuring it'd cost the company a million bucks at least."

Questioning residents at the upper end of the hollow gave them a very accurate picture of the disaster. The fireball itself was not observed directly, but the flash lightened every window facing it. It was described as being as bright as lightning but not white; either yellow or red, depending on the witness. The shock followed instantly for most witnesses and did considerable damage, warping and twisting houses. A number of doors and windows jammed. Several flues were blocked. The blast followed, breaking windows and further straining the houses. And last came a rain of earth and stones that damaged several nearby roofs. The dust was quite thick for a time.

"We got to the head of the hollow," said Mr. Hardin, "about a mile from the old mine. It was dark down under the dust cloud, though it was already a lot thinner than it had been. We couldn't see where the trouble was, and nobody knew just where this flash came from; they hadn't seen it. But as the boys kept coming up the hollow with word that everybody was shaken but O.K., and we counted noses up the hollow, someone mentioned Ted Halsman. I never even knew he lived in the hollow, because the Halsmans always lived on the other side of Shadyside, but they said he'd bought the old Reid place, the one that had the mine on it. Right away everybody said he was probably dead, because we were pretty sure the explosion came from the other side of the hollow. That was why the blast was so bad in here; the hollow funneled it. Everybody agreed that the Reid place was awful close to the explosion. Someone who knew the way led us in, and we drove up there. We had a little trouble at the wagon ford—the old coal bridge is down—but we got there about midnight. There was nobody there."

The Reid house had taken the worst of the shock and blast, and was a tumbled ruin. Fortunately it had not caught fire. The posse wasted nearly thirty minutes looking for Ted Halsman, or his body, in the ruin. They had to approach the mine on foot, as the well-marked road from the house down to it—about a quarter of a mile—had been crumpled and covered with trees by the shock and blast.

Properly speaking, the mine had ceased to exist; as nearly as the blood-red moonlight and their weak flashlights could reveal it, there was a kidney-shaped crater approximately two hundred feet across the long axis where it had been.

"I've seen coal mine explosions,"

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said Mr. Gordon, "but never anything like that."

The search was abandoned shortly after that, and Trooper Hardin reported Theodore Halsman as missing. Some thought he had been in the mine when the explosion occurred; others said that he must not have been home, as his car was not there, though the truck was. Explaining the explosion and resulting crater was much more difficult for Mr. Hardin. He could only say that it must have been an atomic bomb of some sort, a statement no one at the local headquarters would accept.

The news was released, of course, to the press, and about nine or ten o'clock the next morning they began to arrive. A TV camera crew arrived about noon. Pictures and descriptions of the crater could not be denied so easily as a phone call in the dead of night, and the military began to investigate that afternoon. First glimpses of the crater were enough for most military experts; they ignored the reports of newsmen who had brought their own radiation detectors. So large a crater had to be caused by a nuclear device, of course; which meant the area was deadly with radiation.

It wasn't until late that night, after the area was cordoned off and intensively examined, that they were willing to admit that there was no detectable radiation. The explosion remained unexplained.

First news of the missing Theodore Halsman came the second morning following the explosion, from three girls in Cincinnati, Ohio. Rhoda Williams and two friends, Wanda May S. and Lenora C., rooming together in an apartment in that city at the time. Miss Williams had been dating Halsman occasionally for nearly a year, but reports that she was not really well acquainted with him.

"He was just an ordinary man," she said. "Brighter than most, and more considerate. He was opinionated about a lot of things—said nobody realized how fast things were changing, that the people who were supposed to foresee the future were lying down on the job; they were too conservative. But he never took any interest in any kind of politics. Wanda May has this thing about making the world a fit place for people to live in, but Ted would never argue with her. He would just grin and shake his head and say that she couldn't improve society permanently unless and until she was willing to admit the impact of technology on culture. Because, since technology is always changing, society will have to change—reformers or no—anyway. He said the reformers didn't seem to want to admit that technology would eliminate half the problems that bothered them, like polluted air and water, just in the normal course of events. What they should do, he always said, was to realize

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just what future technology would really be like, not just what was now considered possible. I don't know how his argument went. We didn't any of us pay much attention. You know how it is with young people. They never listen to each other; each one just waits for a chance to say what *he* thinks. Nobody takes it seriously. We didn't know he was a rich inventor."

On the morning of September 13th, the girls arose early—about seven—and found Halsman asleep, slumped in a chair in the living room/dinette. How he managed to enter the two-and-a-half-room apartment remains a mystery. His shaving kit was before him on the table and he looked as if it hadn't been used in several days. The girls had not seen him for two months, and in that time he had lost weight, his face was gray and lined with fatigue and he seemed to have aged twenty years. When they awakened him he seemed like a man who kept himself going on sheer nerve, which appears to have been the case.

He admitted that he hadn't had more than five hours of sleep at a time for a month, usually less, and it was obvious that he had been working hard. He was too tense to eat; had apparently not eaten much in over a month. After some more or less pointless conversation in which he seemed to have changed completely from the relaxed, ironic Ted Halsman they knew to an intense, defiant, quivering young man with haunted eyes, he came to the point of his visit: he proposed that Miss Williams should elope with him.

"I didn't know what to think," she said later. "I didn't hardly know him, and then he was gone for such a long time, and changed so much. And I'd never had any reason to think I was anything special to him. But eloping!—he said, run away together; I suppose he meant to get married. I don't know. I got the impression he hadn't thought it out himself. He had to go, he said that much; he was running away, would probably be running the rest of his life. He didn't want to be alone, but he knew he'd never have time to get acquainted with anyone else as well as with me. We asked him what he'd done and he just laughed, sharp-like—bitter. Nothing, he said, that anybody couldn't do, granted the knowledge. Why he was running was not because of what he'd done, but what he knew. He said soon everybody and his brother would be after him. But it was important, he said, that he never be caught; the world wasn't ready for that kind of knowledge.

"We hadn't heard the news then, but we knew that kind of talk, and besides, he had talked before about atomic power. We hadn't paid much attention, but Wanda remembered the talk and asked why, what would they do? Blow up the

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world? He looked at her, startled, then at all of us, slowly, like he was just seeing us for the first time and was disappointed in us. He shook his head and said in a measured tone, 'Nothing as simple as that.' Just as if blowing up the world was nothing beside what he'd found."

Halsman stayed at the girls' apartment only long enough to drink two cups of coffee and shave. He declined breakfast and left shortly after receiving Rhoda Williams's refusal. He seemed neither particularly surprised nor disappointed by the refusal. All the girls agreed, however, that he was in a state of emotional and physical exhaustion; he felt nothing strongly except a determination not to be taken alive. He was very positive, very grim, on that subject. But his eyes were haunted.

He was noticed once more that morning, at the garage where his car's front wheels were aligned. The mechanic told detectives that a man answering Halsman's description and driving a car like his had been there on the morning of the thirteenth. After the lapse of time, however, he was able to contribute no further details.

While the girls were calling the State police on the morning of the fourteenth to report having seen Theodore Halsman, national press associations and the TV networks were putting together summaries of the available information on the "Shadyside Crater Mystery." The day before, the missing Halsman had been mentioned repeatedly, though not strongly; he was the only casualty. The military had still to release any important information following the report on absence of radiation the night before. They were, therefore, ripe for a new twist, something sensational, and the assertion that Halsman had discovered a new type of atomic bomb—the girls' report was promptly released by the State police—was just what they needed. The first phase of the search for Ted Halsman had begun.

In the days that followed, while the AEC plunged more and more deeply into bafflement in the Shawnee Bend Crater, the federal government officially did nothing while the FBI, CIA, and Military Intelligence quietly gave Theodore Halsman the full treatment. There was nothing, they all said, for which the man could be held. Their primary purpose for quietness was to ease the mood of hysteria which the news and TV people seemed bent on provoking. Their reports were coordinated, with some friction, at the upper levels, and the report prepared for "Cabinet-level officials and above" was ready within a week.

It began: Theodore Cooke Halsman, born 7 April 1948, Shadyside, Kentucky. Parents, George H. and Wilma Fleming Halsman. Third of four children, two broth-

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ers and one sister. Educated in local high school, Consolidated R-10. Three years in Exeter Technical School, a small private technical institute in Louisville, Kentucky; quality, average. No degree. According to testimony of family and acquaintances—no close friends—subject was largely self-educated. By the time he graduated from high school, he was a skilled electronics technician and was already making 'enough to live on.' He worked his way through his three years of college and always seemed to have enough money and enough time. His specialty was electronics, but he was keenly interested in all sciences, with special reference to physics. On political, social, religious, psychological, or personal questions he was reticent, largely out of indifference. His roommates and acquaintances generally agree that he considered most questions concerning the world's current problems, in any of the above subjects, to be too narrow to be meaningful. He seemed to have a very broad view of human society. "I got the impression that he never considered any problem that wouldn't last at least a hundred years to be worth his time," comments one acquaintance.

On the technical side subject was considered the top of his class, though his grades did not always bear this out; he took more interest in knowledge than grades. After leaving college, he worked in Louisville and Cincinnati for a year or so. During this period he applied for a patent on the pulse-modulated electric motor (D.C.). In 1970 all pending patent rights to the PM motor were sold to General Electric for the sum of seven hundred and fifty thousand dollars. Subsequently, in 1971, 1972, and again in 1973, subject applied for patents on unit-pulse radar systems and univariable antennas—inverted cone type. All these patents have been sold for a total of three hundred and sixty-five thousand dollars. Subject is not known to have held any job since 1970.

In 1972, subject purchased the "Reid place," containing the Shawnee Bend coal mine and moved into the house there. Apparently the mine was used as a laboratory and workshop, though it was a quarter of a mile from the house.

During 1972 and the early part of 1973, subject purchased the following equipment: a mine tractor or mole; a fixed-cable dragline for excavating; four heavy-duty water pumps; thirty-inch blowers and plastic ducts; an atomic hydrogen torch; six D.C. generators without motors, industrial type, totaling eight hundred kilowatts; an unknown amount of electronics equipment, estimated ten thousand dollars' worth; and large amounts of electronic materials such as galena, pure silicon, lithium, graphite, cadmium, tungsten, mercury; also, partly from junk dealers, et

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cetera, he purchased quantities of lead, copper, and glass. The generators, driven by salvaged truck and tractor motors (diesel), were found not far from the original entrance to the mine, with traces of the blower ducts and a home-made sprinkling system for laying the dust. The rest has not been found.

With reference to the above-mentioned electronics equipment, estimated ten thousand dollars' worth, purchased by subject, a salesman for International Rectifiers testifies that subject was particularly interested in nanosecond and faster rectifiers. "I got the impression," said this witness, "that he was dealing with events measured in picoseconds."

. . . Subject was definitely known to have been interested in nuclear power. He has been quoted as saying, many times, that nuclear-electric power packs suitable for automobiles and homes, fueled with light-element radioisotopes yielding charged-particle radiation, could have been built by 1960 if the government had really been interested; a "little Manhattan Project" should have been initiated no later than 1950. He has also been quoted as saying, many times, that all present research on nuclear structure is empirical, a matter of applying enormous energy and hoping some bits of knowledge will fall in the researchers' laps. Also that no genuinely basic nuclear research has been done since 1945, all research having followed a single line since then. He appears to believe that all present theories of nuclear structure focus too much on events in the very short span of the destruction of atoms without sufficient attempt to construct a dynamic, working model of a complete stable atom. Quote: "They concentrate too much on nanoseconds and not enough on gigayears."

Careful questioning, particularly of college roommates, reveals the following tentative description of the subject's atomic or nuclear theories circa 1970:

1) *The current picture of an atom as a nucleus surrounded by a cloud of planetary electrons is wrong.* Since the electric and gravitic fields of each electron and proton extend "to the limits of the universe and back," it is foolish to visualize an atom as having an open space between nucleus and electron shells.

2) *The correct view is that of an onion, of concentric layers of electric charge, from outer shells to nucleus.* Subject expressed skepticism on numerous occasions about the current view of large separation between nucleus and outer shells. "So highly charged a space can't be called empty."

3) *Neutrons do not exist in the atom.* There are only two elementary particles, electrons and protons; one secondary particle, the

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neutron, produced only on "violent destruction" of the nucleus. All other particles that have been discovered are merely "bits and pieces —corpuscles—matter half converted to energy" and there is, therefore, no limit to them and no further point in pursuing that line of research. The nucleus, in this view, consists of a very tightly-wound "onion" of small (negative) and large (positive) layers of electric charge. A neutron can not exist in such an environment; there is no relationship between given electrons and protons, and which electron will combine with which proton upon "violent destruction" is purely a matter of chance.

4) *More could be learned about stable atoms by subjecting them to intense electric and magnetic fields than by violent destruction.* On several occasions subject called his theory of atomic structure the "electric-field atom."

5) *The concept of nonviolent destruction.* Few details are available on this concept, but apparently the subject believed that if sufficient stress was applied to stable or perhaps mildly unstable atoms, their structure would "collapse, while the bound charges expanded." Apparently he believed that this would yield energy in the form of electric current.

These theories have been briefly examined by investigators from the AEC—on the crater site—and are being studied in more detail by the AEC. The tentative reaction is to consider them either incomplete or nonsense. Points One through Three contain "much to deride, but more to think about," in the words of one physicist. Point Four was universally considered an "interesting" point; opinions were generally negative or withheld on point Five.

Further research, in the opinion of those involved in the investigation, may turn up a few details, but no significant information; subject had no confidants and generally kept his unorthodox opinions to himself on finding that they excited nothing but ridicule.

(This report was not declassified and published until the re-evaluation of the Shawnee Bend Incident in the election year of 1980.)

The NBC Special, "The Shawnee Crater Mystery," of September 15th, is generally considered the bellwether of the public mood of hysterical demands for the capture of Theodore Halsman. Actually, the mood was set in the newspapers before airing of the NBC Special.

Mr. Catton: "What could possibly have caused the Shawnee Crater, Dr. Reinhard?"

Dr. Reinhard: "Well, a few thousand tons of TNT might have done it. A small nuclear device might have done it. If it was nuclear, it was something far in advance of anything we now have."

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Mr. C: "Because of the lack of radiation. Not because of the size of the crater—of the bomb, I mean?"

Dr. R: "Oh no. No, three to five kilotons is nothing. If it was a nuclear device, it can't have been a fission device—one utilizing uranium or plutonium fission. It must have been a hydrogen fusion device."

Mr. C: "A little H-bomb, eh?"

Dr. R: "In a manner of speaking. You understand, if *that's* what it was, it is revolutionary because of the size of the crater—no fusion device with so low a yield has ever been made. Small clean bombs such as that, maybe even smaller, would have terrific impact on all military technology and theory."

Mr. C: "Going back to the uranium bit, I gather that H bombs have to be set off by a, what you call a fission bomb—like the primer cap in a shotgun shell. You mean that he found a way to set off an H bomb without using uranium? Is that what makes it such a clean bomb?"

Dr. R: "That's the only way I can think of that a clean bomb could be made, yes. Fission yields neutrons, which cause anything they hit to become more or less radioactive. If it's a fusion device, too, it must have been fueled with light hydrogen, to coin a phrase, rather than heavy hydrogen. The two isotopes of heavy hydrogen contain neutrons which can be released in fusion reactions, too. All present bombs are fueled with heavy hydrogen; we haven't been able to make light hydrogen work. That would make a cheaper bomb, too."

Mr. C: "Dr. Reinhard, just how much information do you really have to go on? I mean, this is not just a wild guess, is it?"

Dr. R: "Well, I'm not on the investigating team. Anyway, what actually happened is still a matter of conjecture. I've just told you what I think to be the most likely explanation. We know that the—experiment—was being conducted in the mine, which is tunneled partly into the mountain above the shelf there. When the explosion came, part of the mountain slid down into the crater, burying, oh, half of it. The part we want to study is right in the center, right underneath all that dirt and rock. Until they can get down under it, we won't know anything of importance about the actual explosion. The fireball was partially confined, showing red or yellow through the dirt and dust, and no radiation could be detected in the fallout or base surge; so there can't be much in the melt puddle. That's if there is one; there may not be."

Mr. C: "So you say it must have been some kind of home-made atomic bomb? One like nothing we've ever seen?"

Dr. R: "I believe that to be more likely than that Halsman hauled

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load after load of TNT, at least three thousand tons of it, up that awful road and across that ford, to the mine."

The Chicago Incident

On September 18, 1973, at nine o'clock, a group of young men, including two soldiers on leave, were standing with their dates on the corner of Fifth and Warfield, Smithton, Chicago. All had been drinking and several of the men were drunk. A plainly dressed young man passed them without speaking or paying much attention to them, and approached a truck parked at the curb. This or a highly similar young man had recently purchased half a ton of electronics equipment from a Smithton company, taking delivery that day; he called himself George Headley.

One of the more drunken soldiers, a tall, very strong man, seized the stranger and spun him around, accusing him of brushing by too close to one of the young women present. In a moment the stranger found himself surrounded by belligerent drunks, all of them armed with knives or blackjacks.

According to the testimony of the witnesses—the young women present, most of whom had drunk less than their dates—the stranger did not speak. He glanced around once, gave ground as far as possible, and when it was no longer possible to retreat, he produced a weapon. It was described as being dark or dull colored and having a long, thin barrel. The barrel was abnormally long and thin; all witnesses agreed to that, the only thing in the entire encounter on which all agreed.

The stranger pointed this weapon at each of the three menacing young men, discharging it three times. Witnesses agreed that it produced little sound, nothing more than a pop. They also agreed that the muzzle-flash was unusual. Some stated that it shot a thin flame into each victim; one that it shot "lightning rays"; another, "death rays."

The three victims fell, one dead, two mortally wounded, and the stranger was not molested as he entered the truck and drove off.

Doctors who attended the two wounded men, who died before morning, reported that the weapon, whatever it was, had all but disintegrated the area around the points of entrance; that there were no bullet paths through the bodies, and no exit points, but no bullets in the wounds. Too, the wounds gave some evidence of having been burned; at least, charred flesh had been scraped out.

This report, released to the press the next day, was widely interpreted by them to mean that the wounds had been caused in some unknown, if not inexplicable, fashion. By, that is, a science-fictional "blaster" or "raygun." Misguided scientists contributed to the mood of panic by speculating in print on

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how an electrical-discharge device might safely be turned into a powerful short-range weapon. This publicity was noted by the witnesses to the Incident before they could be officially questioned; hence all their testimony was compromised.

Following the Chicago Incident, the public discovered that it was in danger from Ted Halsman, and the phase of hysterical demands that he be seized before the Reds got to him—or he to them—gave way to panic and demands that the menace be removed. The government agencies were willing to comply publicly now. In a mere week after the Shawnee Bend Incident, as it was officially called, AEC scientists had performed prodigies of investigation and examination of the half-filled crater. Their preliminary report, plus the secret report on Theodore Halsman for the Cabinet prepared by the intelligence agencies, which became available almost simultaneously, made it imperative that Halsman be found.

Briefly, the AEC concluded that a number of nuclear research devices of unknown type had been built and operated in the mine. Remains of several were found in a number of rooms near the entrance to the mine. Some had apparently been abandoned, stripped of parts, after burning out; nothing had been learned from their crushed remains. Others had literally been melted into puddles of liquid metal. The puddles were found deeper in the mine, and the investigators concluded that as he learned more, Halsman went deeper into the mine for safety.

The later devices were clearly experimental nuclear electric generators—see references to Halsman's theory of nonviolent destruction. Remains of a concrete fill were found leading out from the estimated center of the explosion. In it were four six-inch copper bus bars on ground rods. One of these ground rods terminated in refractory teeth inside a massive concrete bunker full of coke. The teeth had apparently been surrounded with prepared graphite, then the bunker filled with coal. The coal was then heated until all gases were driven off, then the bunker sealed.

The bunker was apparently used simply as a heat sink, a place to throw away the energy generated by the experimental nuclear electric devices. And it was only one of four. How many other such concrete-protected ground lines were laid was not known.

Not far from the Reid house itself was an old earth-mound cellar which had been thickly lined with reinforced concrete and used as a control and telemetry station. One wall of it was lined with meters and recording devices which could be thrown into or out of circuit as desired. Twelve buried ca-

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bles led to the mine; their courses could not be traced much farther than the old entrance. Nothing of importance could be learned from the control station; however, numerous meters were burned out and needles bent around stop-pins. All recording elements were destroyed and numerous—at least five—volumes of loose-leaf notes were burned here beyond all possibility of reconstruction.

Other evidence, plus that gathered by intelligence agencies, permitted the following conclusions: Theodore Halsman was engaged in nuclear research by subjecting experimental samples to extreme electric and magnetic fields in nanosecond pulses. He succeeded in liberating nuclear energy, probably in the form of electricity, certainly in the form of heat—the explosion. It was unlikely that nuclear radiation, whether particulate or radiant, was released at any time. Further, subject was fully aware of the possibility of a nuclear explosion—too rapid liberation. Preparations were made ahead of time in the event flight became necessary. All his remaining funds were withdrawn, estimated at between fifty and a hundred thousand dollars, clothing was packed and ready, he had familiarized himself with his escape route, and had previously determined to stop at the apartment occupied by Rhoda Williams. This last, it was theorized, as much to leave a warning to the authorities as to persuade that young woman to accompany him, which he clearly did not expect.

The knowledge and techniques discovered and utilized by Halsman in his research were of the utmost importance, both as pure knowledge and for their many applications in science, industry, and the military. As it was not considered possible to learn anything from the Shawnee Bend site, two methods of acquiring those techniques remained: finding Theodore Halsman and persuading him to give them up; and mounting a massive blue-sky research project on the electric-field atom, canceling all present projects and literally starting from scratch in nuclear research, along the lines Halsman was known, or presumed, to have followed.

That second method of acquiring the Halsman techniques, as the Secretary of Defense told the President, would take years even to initiate; scientists do not give up their pet projects so easily. The hunt for Halsman became intense.

But even as this decision was made, physicists in bull sessions, conferences, the Shawnee Bend investigation, in laboratories and living rooms, discussed, denounced, and defended what little was known of the Halsman theories. The radical Halsman techniques began to be tested in haywire rigs, with indifferent results, on stable

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and unstable atoms. But the unblinkable fact of the Shawnee Bend Crater proved there was a wholly new, unthought-of approach to nuclear research, and since what was known of the Halsman techniques was so general, each investigator felt justified in going his own way, in advanicng and testing theories that were obviously ridiculous.

Discrepancies in old theories were discovered first; as the old theories were proven to have been inadequate, the inadequacies to which they'd blinded themselves, which had been papered over with what were now shown to be indefensible assumptions, became obvious. No acceptable new theory of atomic structure was evolved; instead dozens of partly-baked ideas were discussed and tested. Since new facts had to be accepted on their own merits rather than being fitted into existing theories, whole new concepts were evolved and for a time the field was highly fluid.

Gradually, as politicians discussed introducing a bill for a new research program at the next session, nuclear physics was revolutionized without a program. Not by new knowledge—there was little of that yet—by new views of old knowledge. A whole stream of thought had been levered out of its channel into virgin territory, there to cut new channels wherever the ground was softest. The modern era was born.

Meanwhile, tireless investigators traced Halsman to New York City, where he was known to be buying various types of equipment. There they lost him. They did not dare apply the usual method of publicity, alerting the populace to watch for and report him, in view of the fear in which he was held following the Chicago Incident. The investigation had to be carried out quietly. It is surprising that it wasn't until September 30th that Peter Hampton was called in.

Hampton was well-known in certain circles in New York; had cooperated frequently with the FBI; was known to Senator Roxmire. He was on the burglary detail, with a sort of roving commission; also specialized in jewelry heists. Whenever his name appeared in the papers, it was usually followed with the term, "the psychological detective." Hampton's technique was to study his quarries exhaustively, then lead them into a trap. A technique, as he frequently pointed out, of very limited use. It takes too much time and will only work on conservative criminals operating in a well-defined area. Ideal, within those limits, for ending the more spectacular series of crimes.

Peter Hampton's investigation began with a document compiled by the FBI and Military Intelligence, classified until 1988, on Halsman's modus operandi. The keynote of his method, declared this document, was simplicity.

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Halsman always used the simplest, most direct method of solving a problem. His solution to the technical problems presented by the battery-electric minicar was to invent a new type of motor.

The pulse-modulated motor is a universally-variable-speed motor, eliminating gears. It is itself so simple and so small that one can be built into each wheel hub, thereby eliminating the drive train and differential. The problem of an univariable-speed motor, again, is solved in the simplest way, by separating power from speed. One "phase" of pulses is very high voltage (speed); the other is low voltage, very high amperage (power). Speed and power are determined by the relation of one "phase" of pulses to the other. Similarly, Halsman's nuclear research bypassed the complex and expensive accelerators and reactors that were considered the sine qua non and proceeded directly to the basics of the electric particles of the atom.

Halsman's flight from Shadyside, Kentucky, is further eivdence of this technique of reduction to simplistics, and also demonstrates the man's thoroughness. The flight was apparently a contingency plan, well worked out. He had familiarized himself with the old county road, withdrawn all his remaining funds, supplied himself not only with clothing and spray cans of paint for the car, but, it is theorized, with a specially-designed license plate, the number and color of which can be changed quickly. In Chicago he is known to have used not less than eight identities, even going so far as to attempt to disguise his handwriting—with indifferent success. Some of these were minor identities, used merely for buying ready-made equipment—off-the-shelf—for cash, yet he was as painstakingly thorough with them as with the major ones, in which he ordered thousands of dollars worth of equipment.

The "Chicago Incident" is another example of both thoroughness and simplicity, as well as of his reaction to hostility. He avoided trouble as long as possible, then applied the minimum of violence to gain his end, shooting only those who stood between him and the truck, shooting only as many of his assailants as necessary to deter the rest. The "Chicago gun" or "Halsman gun," upon analysis of the reports, turns out to have been a simple, ingenious, unmysterious version of the traditional firearm. The three victims had normal powder burns on their clothing. The quietness of the gun may partly be attributed to the fact that it used a small powder load—possibly equal to a .22 Long Rifle or even .22 Magnum. The quietness may also be partly attributed to the long barrel, probably six inches; seeming much longer because of its extreme thinness. The gun fired a small pellet of aluminum/lead, dis-

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integrating completely on impact. Traces were found in the wounds. The combination of long barrel and high powder-to-bullet weight ratio produces a very high velocity; hence the disintegration and charring of the flesh in the wound. It is presumed that Halsman cast his own pellets and loaded his own cartridges, using commercial cartridges. The Halsman gun did not eject any shells, presumably being a double-action revolver of his own make. (Halsman is known to be a skilled machinist.) The revolver cannot hold more than six shells, probably no more than four, in view of its small size. It had no visible hammer and was undoubtedly streamlined to prevent its catching on clothes. Experts declare its effective range to be no greater than that of a thrown rock, but it is still a formidable weapon.

In general then, Halsman is highly dangerous. Being both thorough and determined, he can be expected to be prepared with any number of contingency plans at any time in case an attempt to apprehend him is made. He is armed with at least one new weapon, and in view of his ability to reduce technical problems especially to their basics, he may have others as remarkable. His automobiles are especially to be avoided. Finally, in view of the importance of his knowledge, we believe his determination to be so great that he will suicide if possible if apprehended. He is, therefore, to be approached with great caution, as, if his life is worth so little to him, his apprehenders' would be worth less.

Hampton made these conclusions the core of his strategy, understanding far more of their implications than any of his superiors.

On October 19th, Peter Hampton was called to the White House, where he conferred with the President, the Secretary of Defense, Senator Roxmire, an unidentified man from CIA, and two unidentified men from the Pentagon in mufti. It is to his credit that Hampton never attempted to use this or any other official conference to defend his later actions, though he was dubious, as later testimony made clear, about the wisdom of attempting to apprehend Halsman.

The conversation was not reconstructed publicly until 1980 and no details are available. However, it is known that Senator Roxmire led the Pentagon and CIA in insisting that Halsman be seized and if necessary forced to disclose his knowledge. Hampton made clear his doubt that that last was possible, all agree, but did admit that he was in "contact" with and could pick up the man at any time.

The Secretary of Defense and the President were reluctant to order this done, but Hampton made it clear that his contact would not be able to get any tech-

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nical details from Halsman. He had received a number vaguely-worded warnings that the knowledge he—Halsman—had was too dangerous, that while he couldn't blow up the world, it could definitely be used to destroy societies and cultures without war. He had admitted, said Hampton, that it could be used as weapons. In the plural. The knowledge literally was that of the whole field of atomic power with all its applications.

This confirmed the AEC's conclusions and made the military doubly anxious to seize him. The President, in his one contribution to the discussion, asked Hampton what Halsman intended to do with the equipment he had been accumulating. Hampton did not know, probably further research. It was clear that the explosion had taught him a lot; there would probably not be any more unless Halsman desired them.

Questioned on that sharply, Hampton gave it as his opinion that if necessary Halsman would build, or pretend to build, a bomb and threaten to blow up the city unless he were left alone, if he was pushed too hard. He was clearly under an enormous strain.

The resulting outcry, led by Senator Roxmire, for his seizure carried the day over the silent disapproval of the President and Secretary. No time was to be lost, lest he should succeed in building his bomb. This bomb scare could not, of course, be publicized, a fact that cost the President's party the next election.

In view of the cloud that this decision cast on Peter Hampton's name, it is odd that the public account of the Central Park Incident is owed to him. Returning to New York City, he called Albert Grown, a reporter for the *Times*, in defiance of the Pentagon's solemn order of total secrecy. Grown was to accompany him in picking up Halsman on the 23rd. This was canceled the morning of the 23rd because of rain, but the date quickly set for the 26th.

On the night of the 26th they took their places among the denuded shrubbery of Central Park. It was cold, clear, frosty. After a long wait in the cold, Halsman and the contact approached.

The contact was Pamela Hampton, Peter Hampton's sister. She was described as being beautiful in a girl-next-door way, with shoulder-length brown hair and very direct light brown eyes, a superb figure with the stride of a dancer or skater. "A lot of bounce and youthful idealism."

Their conversation was largely inaudible. Halsman was conducting a dejected monologue, Miss Hampton listening sympathetically; it became obvious how Hampton had come to know so much about his quarry. There had never been any question about how he had located the man. Hampton had remarked

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to Grown that scientists and technicians were as conservative as burglars; once they became accustomed to a way of doing things or of a brand of equipment, that was the one they'd stay with. He had a company advertise the imminent development of a very fast rectifier in the technical journals, then placed his sister on the company's information desk.

They paused on coming abreast of the hidden men, and something of the strain Halsman was under became obvious. The police stepped out quietly as Miss Hampton stepped smoothly away from him, eyes large in the dim light. Halsman realized instantly he was surrounded, but was stunned at being betrayed by Miss Hampton, and stood staring unbelievingly at her for several seconds. She stared back, large-eyed, hands at her mouth.

Peter Hampton and one other closed in from in front, two more from the sides, two more—counting Albert Grown—from the rear. Hampton was counting on Halsman's emotional exhaustion, which had increased since Rhoda Williams saw him, and on the soothing presence of Pamela Hampton to relax his guard. Ordinarily so many men could not have got close to him.

When the first policeman took hold of his right arm, Halsman galvanized. He snapped his fingernail and thumbnail together and instantly the nails of his right hand were one bright flame. Startled, the policeman released the arm, and the flaring fingers were pushed at his face, then Hampton's, who was closing in with his mind on the Chicago gun. The fingernails of the left hand flared as those of the right died, and the little revolver leaped into his hand.

The other man in front of Halsman died first, then the man still groping for his left arm was mortally wounded. Several others now behind him clawed at his shoulders as he started forward, and he half turned, throwing a final pellet in

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Hampton's general direction. Hampton dodged, and the pellet made a hand-sized wound in his side, vaporizing sections of a couple of lower ribs and taking him out of the fight.

He was still conscious, however, and as Halsman disappeared, he called his men back. They had started to pursue, but it was obvious that they could not take him alive without a prohibitive loss of life, if at all. The operation had failed, but Hampton had demonstrated uncommon qualities throughout. He was to demonstrate many more in the following weeks.

The next day Albert Grown's story broke, to the fury of the military and CIA. His sympathetic account had as much to do with the fury as the failure. As the only contact with Theodore Halsman, Pamela Hampton was questioned exhaustively, first by reporters who turned out still more sympathetic accounts of a great inventor determined to "exile" himself rather than see his knowledge misused, then by the military.

The resulting publicity, much of it disgustingly maudlin, brought about the third phase, in which Halsman was to be let go with society's blessing. The public clamored that he was a saint and that the search should end. Much of the fury focused on the Hamptons; there were demonstrations outside Peter Hampton's hospital.

A day after the Central Park Incident, a small warehouse burned. It was found to have been full of assorted equipment and a number of strange electrical machines, and the fire was obviously arson. This was taken by the press and apparently everybody, but Peter Hampton, to mean that Halsman had burned and destroyed his latest experiments because of the Incident and that he would have to start all over again. Hampton's last public statement on the Halsman case was to deny this assumption. That was not like Halsman; he was undoubtedly ready at any time for the possibility of apprehension. The fire had followed the Incident by over twenty-four hours; Halsman had been careful not to let even Pamela Hampton know his address; and there were visible gaps in the rows of equipment. He would not need to start over.

Privately, to the military, Hampton emphasized that the danger from Halsman was now acute, that he should not be pressed.

Late in November, after a month of unrelenting public pressure, the President officially called off the search for Halsman. The FBI actually did drop the investigation; Military Intelligence continued to question people but only on the technical phases; CIA, carrying on alone, found itself undermanned for this kind of search. (A study of reports indicates that it was still looking for him desultorily as late as 1978.)

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Also late in November, Peter Hampton was released from the hospital and resigned under pressure from the New York Police Department. (To their credit, the President and Secretary of Defense did all they could to divert hostility from Hampton, the former going so far as to say in a speech that he, Hampton, had merely been attempting to give the people what they had said they wanted. It wasn't until 1980 that they were allowed to assume their share of the blame.)

On November 29, 1973, Pamela Hampton was admitted to the local hospital and stomach-pumped after an accidental overdose of sleeping tablets. She was visited there by her brother the next day. The press was excluded. On the 30th, Peter Hampton withdrew his life savings from his bank and sold all his holdings. He also cashed a check that cleaned out his sister's account. Then he vanished.

Numerous programs were set up in various research departments during the next two months, none of them with many funds, but all with distinguished scientists. Private industries also began to investigate what little was known of the Halsman technique. Already physicists were starting to say that everything known about the atom was obsolete. Comedians cracked that nothing more was known about atoms than was known two hundred years ago; all the old knowledge was false and there was no new knowledge to replace it.

On January 6, 1974, Pamela Hampton quit her job with the Reynolds Plastics Co., withdrew what little savings she had accumulated in the previous two months, and disappeared. On January 14th, Peter Hampton applied for a position with an insurance company. When discovered and questioned by reporters a week later, he made it clear he was no longer news. He absolutely refused to discuss any item on the following list: one, Theodore Halsman; two, Pamela Hampton; three, Peter Hampton; four, the Central Park Incident; five, the Chicago Incident; six, the Shawnee Bend Incident; seven, the New York Yankees.

As the congressional session got under way, it became obvious that there was a general mood in favor of scientific research. Research programs were begun that stunned the scientists, who for once got everything they could ask for. Many of these programs were justly charged with being extravagant, wasteful, useless; but it was never denied that they, coming at the apex of a period of revolution in physics, sparked a decade of scientific advance that changed history and took the world into the Twenty-first Century.

In September of 1985 the world was treated to another scientific

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TV Special on the new physics, during which the mystery of Ted Halsman was mentioned yet again, this time to a man who was qualified to have an opinion.

Dr. Nzuma: "I doubt if he's still on Earth at all."

Mr. Browder: "Really? Is he that far ahead of us?"

Dr. N: "I think so. After all, twelve years ago he had nuclear-energy liberation down so well he could create a mass-conversion explosion. Only a very small one, luckily for him, because no such reaction can sustain itself. Of course we don't know the size of his fuel element, or especially the composition—magnetically, I mean. Still, it's more than we've been able to do. Is it impossible for him to have mastered enough of the relation between electricity and gravity? If not, he's had time enough to build a spaceship."

Mr. B: "I see what you mean. We've only had, what is it, five years to study that relationship ourselves. Space certainly is the simplest way of exiling himself."

Dr. N: "Yes. He can't by himself have made all the advances in other fields that we have seen in the last decade—I mean, fusion generators, ergons, bioengineering, electrosynthesis, capacitronics, Morel metallurgy, and so on. But no doubt he has stayed close enough to Earth to buy a lot of equipment he'd need in a spaceship."

Mr. B: "Perhaps it was better that we should learn it all slowly, the hard way. God knows what we'd have done to ourselves with that kind of knowledge in 1974. It really wouldn't be good for them to come back yet."

Dr. N: "Well, wherever they are now, I'm sure all wish them the best of luck. I wish I were with them. He's not only hiding in the perfect place, he's got the perfect location for research."

Mr. B: "They're sure far ahead of us—they've eliminated income taxes!"

Pamela Sue Cooke switched the TV from antenna to the children's room—they were sleeping peacefully—then back.

"Well, that beats Argentina or Siberia, where they had us the last time," Ted said.

"Or Mammoth Cave," she chuckled, shivering.

"It surprises me sometimes how close they can get without guessing the truth," he mused. "Obviously the simplest way to avoid paying income taxes is to make less than twenty-five hundred a year."

"That's a lot less for the four of us than I used to make, myself, in '73," Sue told him. "But I'm wealthy now and I was poor then."

"At that," he continued, "it's a good thing our fingerprints weren't on file anywhere or they'd have spotted us when they switched over to fingerprint code on everything."

"Well, it's not like we're really

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hiding. They should've found us a long time ago. What have they been doing all this time?"

Troubled, Ted asked, "Do you want to surrender?"

She relaxed. "I guess not. It's just that I'd like to see Pete and Gail and the rest of them. And I'd like to get the . . . the storm over with. I love Shady Island, I like gardening, and I don't mind keeping up the boatel. And it's great for the kids. But Oregon is so far away from the world."

"I wouldn't mind getting my hands dirty again, either," he said wistfully. "And it wouldn't matter now if they found us; I didn't really expect to survive the first year. But you'll see them all sooner than you think; I've been expecting us to be discovered any year now."

"Why didn't they just ask themselves what would be the simplest way for a couple with a nice lump of money to drop out of sight, and then just check all new small businesses? It wouldn't *really* have mattered if they had found us the first or second year."

"Sunshine, Sunshine, they're not capable of asking such basic questions, or I'd never have had to kick them out of their rut. Or been able to. Not even your brother thought in such terms; he never would have found me the second time if I still hadn't been laying trail. To them we weren't dropping out of sight, we were escaping. It takes real intelligence to reduce problems to their basics. Still," he confessed, "I've often wondered why none of them thought to ask what became of all the coal in the mine." ■

IN TIMES TO COME

The cover story featured for next month is "Birthright," by Poul Anderson.

Poul's Polesotechnic League has been weaving through Analog's pages for over a decade—with that stout (in all sense of the term!)—character Nicholas van Rijn and his Solar Spice and Liquors Company's business.

Now the odd thing is that that series of stories has been made the basis of a study in an advanced Business Administration course in a California university. They've been analyzing old van Rijn's future interstellar business enterprise.

However, as the course took off the author's stories, feedback was inevitable; this story takes off from some of the economic laws—which can be just as inflexible as the laws of physics!—applied to the invasion of a planet.

It seems, somehow, that things in the invasion-and-take-over business just aren't as simple as they seemed . . . ! THE EDITOR

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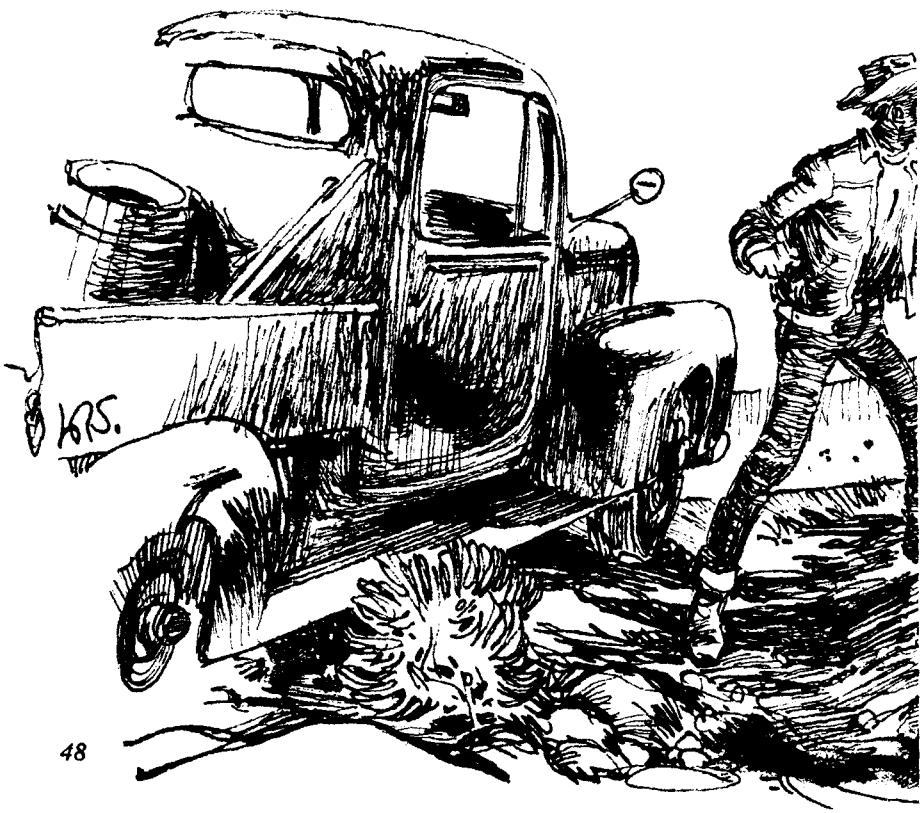
THE PROPER GANDER

Camouflage does not require that an object be made invisible; merely that, no matter how obvious, it be considered of no importance—

A. BERTRAM CHANDLER
Illustrated by Leo Summers



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His title of rank in literal translation was Officer-Commanding-Not-Less-Than-Four-And-Not-More Than-Twelve-Spaceships. And his name, also in literal translation, was Worker-in-metals; in the early days of any technological culture craftsmen tend to assume the names of their crafts. We could refer to him, therefore, as Commodore Smith—but that doesn't have a very alien sound to it. "Commodore Pandordikring" conveys the right impression without being too long-winded.

He was humanoid, was, this Commodore Pandordikring. He had been born and raised upon an

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Earth-type planet on which parallel evolution had taken its course. To even more than casual observation he would have looked quite human, just as human as any Earthling of equivalent rank aboard a Terran surface vessel. Under his deeply tanned skin he was different, more than a little different, but it was extremely unlikely that his body would ever fall into the hands of an Earthly surgeon or medical student smitten by the urge to carry out either a major operation or a thorough post-mortem.

The Commodore had been running to this planet called, by its natives, Earth, for quite some years —first as a junior officer, then as a captain, finally in his present rank. The Earth run was not popular, but somebody had to make it. On other worlds there was shore leave for the crews of the starships; on Earth there was none. There was a brief stay on the oversized satellite called the Moon, for maintenance and briefing. Then there would be the swift descent through the planet's atmosphere, followed by a dive almost as swift to one of the submarine mines. After loading, which never took long, there would be departure, and another short stay on the Moon for refueling and what little maintenance was required. After that—the long and boring voyage home. It was a pity, the Commodore always thought. Those cities —what little he ever saw of them —looked fascinating. And there was still so much absolutely unspoiled scenery—while it lasted. Already it was obvious that Earth would go the same way as all the other planets that have spawned heavy industry.

Commodore Pandordikring appreciated scenery. He could have led his squadron of nine ships to the intersection of meridian and parallel on the ocean surface, below which lay the mine at which he was scheduled to load, by a much more direct route; there had been no need for him to fly over one of the continents, far less need to go rock-hopping among the mountains. But he liked rock-hopping. There was the thrill of speed, a thrill absolutely lacking in the control room of a ship falling through interstellar space at a multiple of the velocity of light. There was the thrill of speed, and there was the grandeur of the spectacle, the great, stony giants, green-clad, thrusting their ice-crowned heads high against the cloudless blue sky.

Pandordikring was handling the flagship himself, her Captain sulking slightly in the background, muttering in a disgruntled voice to his own second-in-command, "If you've seen one mountain, you've seen them all . . ." The First Officer, a spidery being from a world that even close by resembled a billiards ball, made a noncommittal clicking noise. Then his limbs stif-

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fened with an equally audible click. He pointed with one of his many-segmented arms. Even coming from the artificial diaphragm on his thorax his voice held urgency. "Look!"

The Captain looked. The Commodore looked. The other officers looked. A junior made rapid adjustments to the scanner controls, brought the target up to a high magnification in the big screen. It was a machine. From the viewpoint of these spacefarers it was a relic out of a museum. Small it was, in spite of the magnification, and it had wings, and a whirling tractor screw at its forward end.

The Commodore shrugged. "Just one of the natives' mechanical geese," he said in a bored voice. (The word he used was not "geese," of course, but he referred to an avian life form not dissimilar to the Terran goose, indigenous to his own world.) He shrugged again. "We're supposed to give, these things a wide berth, but, from what I know, the pilot will be too busy keeping his contraption airborne to notice us."

He was wrong.

Big fleas have little fleas upon their backs to bite 'em. Commodores have Admirals to get on *their* backs. And Admirals? Well, they have been known to marry. But we are digressing.

The Admiral Commanding Earth Satellite Base was in a bad mood. He towered behind his approximate acre of highly polished desk, glowering. As Nature had endowed him with vicious looking tusks and crimson eyes he was well equipped to glower. He glowered, and Pandordikring did his best not to cower. *After all,* he told himself, *he can't have me shot . . . Or can he?* Beside the Admiral sat a being as humanoid, as outwardly Terran, as the Commodore himself. This man's drab, Earth-style clothing made him a dowdy sparrow in the company of these two gorgeously caparisoned hawks—but there was nothing of the sparrow in his bearing. There was no chirpiness, but there was a quiet, unostentatious strength. A literal translation of his name would be Maker-of-clothing-from-woven-materials. In the Earth city where he had lived for many years he was known as Mr. Tailor.

"You and your rock-hopping!" snarled the Admiral in his own language. (He had always refused to learn any other.)

"I'd expect a first trip cadet to have more sense!" continued the Admiral.

"While you were about it, why didn't you land in Times Square and have your chaplain celebrate the Rites of Drophilon?" concluded the Admiral.

"Times Square?" echoed Pandordikring weakly.

"It's a gathering place in New York, one of their major cities,"

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Mr. Tailor informed him pleasantly.

"You mean that one on the Eastern seaboard of the North American continent, with all the tall buildings?" asked the Commodore.

"And have you been playing 'Chase Me' round the Empire State. Building?" bellowed the Admiral. "I wouldn't put it past you!"

"No, sir," answered Pandordikring.

"Only because the thought of it, until now, hasn't flickered through your tiny mind. No matter. You've done quite enough damage." His huge hand plunged into a drawer of his desk, came out with a little black box. "I have here the control-room audio record from your ship. Normally I never bother to listen to such infantile babblings; I leave that to my staff. But after Agent Tailor came here by Special Express Shuttle to make his report I decided I'd better listen to this one." He depressed a button on the side of the box.

"If you've seen one mountain, you've seen them all . . ." That was the Captain.

"Look!" That was the First Officer.

"Just one of the natives' mechanical geese. We're supposed to give these things a wide berth, but, from what I know, the pilot will be too busy keeping his contraption airborne to notice us." That was the Commodore.

"From what *you* know," sneered the Admiral. "From what you *think* you know . . . But perhaps you will admit, Commodore, that I know more than you. I know that *I* have received orders that this Base is not only to be discontinued, it is to be demolished, and all traces of its ever having been here are to be erased. Agent Tailor *knows* why it has been necessary for these plans to be put in preparation, he knows that it will not be long before those pilots, like the one *who was too busy keeping his contraption airborne to notice you,* land on the surface of this satellite. Meanwhile, it is *essential* that the Earthlings do not suspect our existence. Have I made myself clear? Quite clear?"

"Yes, sir."

"I don't think that you realize yet how serious this is. Perhaps Agent Tailor will be able to explain things better."

"Thank you, Admiral." Tailor smiled briefly at the Base Commander, then turned to Pandordikring. He said, in a dry, schoolmasterly voice, "During the many centuries that we have been mining the ocean beds of Earth there have, inevitably, been sightings by the natives of our ships and our people. Until now it hasn't mattered much. Anything they've seen has been an angel, or a devil, or a god. But, quite recently, they learned that flight is possible by other than supernatural means. As

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you should know, Commodore, the mechanical geese at which you sneer are the forerunners of the starship.

"The pilot of the mechanical goose you encountered saw you all right. He reported the sighting. He was believed by far too many people. And already there's a name for your ships—flying saucers."

"Absurd!" ejaculated Pandordikring.

"No more absurd than mechanical geese." Tailor turned again to the Admiral. "But I don't think that the Commodore's altogether to blame, sir. No matter how careful your people are, there are bound to be more sightings, and by trained observers, by men well above the superstitious peasant level."

"So I am to recommend to my masters that we abandon our mines? It's bad enough having to demolish this Base and build a new one on one of the moons of the Ringed Planet."

"Is that what they have in mind?" asked Tailor.

"Yes. According to you agents it'll be quite a while before the Earthlings get that far."

"Not according to *me,* Admiral. But I'm not a decision maker."

"You'd better start making decisions as of now, Tailor. You know those people. What can we do to throw them off the scent?"

Tailor smiled—and as he did so his face was no longer ordinary, was suddenly very old and very wise. He murmured, "I shall need the services of the Commodore and some of his personnel. Commodore Pandordikring, your flagship carries the normal complement of officers and ratings?"

"Yes, Agent."

"I have already inspected their likenesses—which, of course, are on file here at the Base. I was rather impressed by one of them —that of Officers' Comfort Second Class Tallela."

The Commodore muttered something about brainless trollops.

"It's not her brain I want, sir. It's her face, her body."

"That's what Officers' Comforts are for, Agent."

"You misunderstand me, Commodore. I suppose she can act?"

"All women can act."

"Can she learn?"

"Any fool can learn with a hypno-instructor."

"Then, as soon as possible, she must start learning the Terran language known as English." Tailor then addressed himself to the Admiral. "May I suggest, sir, that the senior Captain of Commodore Pandordikring's squadron be promoted to Acting Commodore, and that the Commodore and his own ship be detained here, to work by my orders?"

"So you can rub his nose in his own mess?" boomed the Admiral. "Certainly, Tailor."

Pandordikring sighed. He knew

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that it would be a long time before he saw home again.

The ramshackle car rattled along the dusty desert road. Its driver jerked it to a sudden, protesting halt, stared incredulously at the huge, lenticulate construction among the towering cacti, dazzlingly reflecting the rays of the westering sun. He was more courageous than most, this man. He did not flee the unknown. Cautiously he got out of his vehicle, walked slowly towards the thing by the roadside.

He paused as he saw movement, stood there and watched as a hatch opened in the underside of the spaceship, as a metal ramp was extruded to the ground. He was tensed to turn and run—who, *what* would emerge from that opening? He relaxed visibly as a pair of long, very shapely legs appeared, followed by an equally shapely body in a short, revealing tunic on which were gleaming badges of rank, topped by a classically beautiful face above which the golden hair was piled high.

She looked at him with her deep violet eyes, and smiled, revealing perfect teeth. She said, in a voice that reminded him of honey, "Welcome, Earthman. My name is Tallela. I come from Venus."

"Did . . . did you have a good trip?" he asked.

"Trip?" Puzzled, her face was even more beautiful. "Trip?" She looked down at her slim feet in the golden sandals, as though expecting to see something over which she might have stumbled. Then her face cleared. "Trip. Voyage. You must forgive me. We Venusians speak the *pure* language."

"Did you have a good voyage . . . Tallela?"

"Of course. Our ships are far superior to anything made in your planet."

A man appeared in the open hatchway. "Captain!" he called, as though it were a dirty word. "Captain!"

The blonde turned and stared at him haughtily. "Yes, Pandordikring?"

"It is time, Captain."

Tallela carefully studied an intricate device strapped on her left wrist. "It is time," she admitted regretfully. Then, to the Earthman, "Forgive me, but I must go." She smiled sadly. "I must . . ." She caught herself, said, "There are things that you, as a race, are too young to know. But I shall see you again. Tomorrow, in this place, when the sun is at the same angle from the meridian."

The man in the hatchway—he looked like an irascible retired Rear Admiral of the motorist's acquaintance—called something in an unknown language. The woman smiled sweetly, walked slowly back to her ship, up the ramp. The hatch slammed shut. There was a

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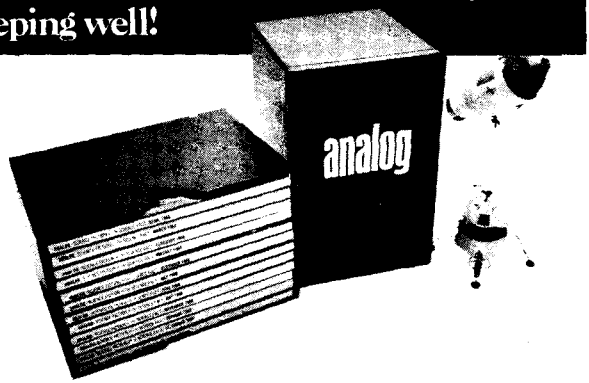

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sudden whine of powerful engines and the thing lifted, dragging a swirl of dust and debris with it. In seconds it was no more than a silvery speck in the cloudless sky.

The Earthman, when he could see no more of the spaceship, walked back to his car, eased himself into his seat. As he drove home, slowly and thoughtfully, his fingers played on the rim of the wheel as though it were the keyboard of a typewriter.

Commodore Pandordikring was pleased rather than worried when he, together with the Admiral, Agent Tailor and Officers' Comfort First Class Tallela—she had, he admitted grudgingly, earned her promotion—was called to appear before the Inspector, whose ship had put in to the soon-to-be-demolished Moon Base. The Commodore was giving himself credit for a job well done, was already forgetting that it had been the agent's idea in the first place. But he had done most of the *real* work, hadn't he?

The Inspector, a tall, cadaverous humanoid from Alpha Draconis IV, seemed to be in a fairly good mood. He insisted, however, that all at the meeting speak English; in his younger days he had spent many years as an agent on Earth and, probably, wished to show that

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he still possessed a good command of one of the planet's most widely spoken languages.

"And now, Admiral," he asked, looking up from the bulky report before him, "what is all this?"

"It the report is, Inspector."

"I know that. What is it all about?"

"It about is . . . About it is . . ." The Admiral was no linguist. "What it is what . . ."

"You seem to be having language difficulties, Admiral." The Inspector shot him a severe look, then turned to Pandordikring. "Would you mind explaining, Commodore?"

"Certainly, sir. You see, I was flying round this mountain, and it seems that I was seen by this native, who was flying round this mountain . . ."

Tallela giggled. Agent Tailor looked smugly superior. The Inspector frowned and said, "Spare us the account of your childish games, Commodore. It is well known that all spacemen are no more than overgrown children; there is no need for you to stress the obvious. Cut the cackle, man. Spill the beans. Slobber a bibful." He smiled bleakly. "No doubt my idioms are hopelessly outdated, but I am sure that you get my general drift."

"I dig you, sir."

The Inspector permitted himself another smile. "You dig me? That's a good way of putting it." He allowed himself a dry chuckle. "Do you know what my cover was when I was an agent on Earth? You wouldn't, of course, but I'll tell you. I was a mortician. I was always digging people. Digging them under."

As long as you dig me out of here so I can be on my way home, thought Pandordikring.

"And now, Commodore, let's have it. All of it."

Pandordikring let him have it. As he warmed up he did not allow too strict a regard for veracity to spoil a good story. He tended, more and more, to overemphasize the part played by himself—after all, it had been *his* ship that had been used, with himself in command—and to belittle, although not too obviously, the contributions of Tailor and Tallela. Tailor had been useful; he would not deny that. The selection of contactees had been left, in the main, to him. Credulity was one of the main requirements, as was a lust for publicity. A little education was necessary, but not too much. A strong streak of superstition—yes, that helped. There had been the tie-in with the myths of Terran mankind. Meetings with favored natives had been arranged most carefully, with Tallela turning on the alien charm. There had been circumlunar trips, even, for these same Earthmen, excellent material for the books that they were bound to write.

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"It was all a matter of psychology, sir," he concluded. "Psychology, and propaganda. There is no way now to avoid our ships being sighted—so we made sure that they have been sighted by those whose stories will be laughed at by anybody with the merest smattering of astronomy, physics or biology. Tallela, here, is obviously from a world that the Terrans would refer to as Earth-type, as are Agent Tailor and myself. As you are, sir. None of us could possibly be a Mercurian, Venusian, Martian, Saturnian, Jovian, Uranian, Neptunian or Plutonian—yet we had no trouble in passing ourselves off as natives of any of the planets in this system which as we know, and as any educated Earthman knows, are utterly impossible for our kind of life.

"So, despite all the very real evidence for their existence, flying saucers, as the natives now call our ships, are just a joke." He smiled. Having now met many Earthmen, talked with them, he had come to appreciate the subtleties of their languages, had acquired a taste for both the proverb and the pun. Surely an accomplished linguist such as the Inspector would share this appreciation. *Put the old fool in a good mood,* he thought, *and I'm on my way home. At last.*

He said, grinning, "It all started, I suppose, with my flying saucers and the mechanical goose. A flying saucer for the goose—and now a flying saucer for the proper gander!"

There was a strained silence. "Very funny," said the Inspector at last. "Very, very funny." He turned to the Admiral. "Agent Tailor is overdue for relief. I suggest that your Commodore Pandordikring—now *my* Mr. Smith—take his place." His bony fingers thoughtfully stroked his bony chin. "There is the question of a cover . . . Ah, I have it." He smiled quite happily at the Commodore, the ex-Commodore. "You can be an entertainer, Mr. Smith, a comedian. You can make amusing jokes about flying saucers on television. If the sample you've just given us is up to standard, saucer will soon become the dirtiest word in the English language."

He sat back in his chair, his hands folded before him, humming softly to himself. The tune was familiar. Pandordikring/Smith tried to identify it. It came, he was sure, from a Gilbert and Sullivan opera. Which one was it? *"The Mikado,"* he thought. ■

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CURFEW

All the history of evolution shows that creatures dependent on passive armor lose out in the race. Hiding's no answer to problems!

BRUCE DANIELS
Illustrated by Leo Summers

Matheson paused in the swirl of hurrying passengers to watch the team of policemen stroll past. There were three of them—uniformed, helmeted, and armed with sonic projectors, dispersal canisters, and automatic rifles. No one else in the crowded terminal seemed to pay them any attention, but Matheson's tourist awareness was jolted. He'd read that the crime situation on Earth was serious, but this was the fourth team he'd encountered in the short walk from the landing pad to the Main Concourse.

Wondering for the thousandth time whether his fool's errand was really worth the trouble and expense of the long trip from Mars Colony, he located the Customs & Registration desk in the turmoil of the buzzing terminal and dropped his bag on the inspection table. His body ached from the drag of the unaccustomed gravity, and he was sweltering in his heavy Martian clothes, which were not designed for the overheated bustle of an Earth-side metropolis. Besides, he didn't particularly care for the manner with which the registration clerk accepted his proffered identity papers. He'd been warned about the reception colonials sometimes received from their cosmopolitan cousins on the homeworld.

The clerk examined his papers briefly and began feeding the information into the computer. "You're from First Site I see, Mr. Matheson."

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"I embarked from First Site," Matheson answered irritably. "My 'stead's located out near Blue Sands."

"I see." The clerk's expression indicated he had no knowledge of and even less interest in Martian geography. He nodded toward Matheson's single bag. "Is that all your luggage?"

"It's enough at the rates you bloodsuckers charge per passage-pound. Look, all the information's in those forms I had to fill out. My name is Clancy Matheson. I have nothing to declare except a few sand gems, and they have been manifested. I'm here on a temporary business trip—something about my uncle's will. And I'd like to get out of this madhouse and go some place where I can cool off. Can't you speed things up?"

"Certainly, sir," the clerk answered stiffly. "Where will you be registered during your stay?"

"My uncle's lawyer has made arrangements for me at the Kreston Complex, Area G, Zone 497. Maybe you can tell me how to get there."

The clerk consulted a small map. "I suggest you take the Manhattan mono as far as Old Trenton, then take a tube to your zone. If you hurry, you can make it in a couple of hours. Don't forget to notify the police if you leave the city proper. And don't dawdle on your way to Area G. You'll have to be there by curfew, you know."

Matheson halted in the process of picking up his bag. "Curfew? What curfew?"

The clerk sighed and handed back his identity papers. "I'm afraid you'd better read the orientation booklet they gave you on the ship again, Mr. Matheson—the part on customs and regulations of the city. Unless otherwise authorized by the police, all citizens must be off the streets between sunset and sunrise. It's the law."

"Between sunset and sunrise! That'll make it pretty difficult to get around and get things done."

"I'm sure the hotel will have made adequate arrangements for your social and recreational conveniences during curfew hours, and will be glad to assist you in scheduling appointments and conducting your business. After all, the curfew is for the public's protection. We have something of a crime problem, you know."

Matheson noticed still another team of policemen circulating unobtrusively through the crowd. From somewhere at the other end of the terminal, there came the rattle of gunfire. The police halted for a moment, then began to move hurriedly in that direction.

"You really must have."

The clerk smiled routinely. "Welcome to Earth, Mr. Matheson. Enjoy your stay."

The Kreston Complex turned out to be a mammoth, blockish struc-

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ture, newly built in an area of major stores and offices. Unlike the steel-shuttered fronts of the surrounding buildings, it had no windows at all on its lower level and bristled with bars at every opening for three stories above that. Matheson studied the monolith unfavorably through the window of his cab. "What is that thing?" he asked. "A fortress or a mausoleum?"

The driver turned and peered back at him around the plastisteel protection shield. "You asked for the Kreston Complex, Mac. That's it. The best hotel in the zone." Somewhere a siren began to sound, filling the street with its weird, undulating wail. "Look, you gonna sit there admiring it all day or you wanna pay me and get out? There's the warning siren now."

Matheson tore his gaze away from the stone atrocity of the hotel. "Warning for what?"

The cabbie swore under his breath. "The warning for the curfew. If I don't get this buggy off the streets and back to the garage within an hour, the company'll be out one hack and the ferrets and banshees'll be chewing on me for supper. Now, you wanna pay me and get out?"

"Ferrets and banshees? What are they?"

"Oh for the luvva Pete, these colonials! Look, Mac. In the daytime the streets are for people, right? And at night they belong to the ferrets and banshees. Now, you gonna pay me or do I buzz for a cop?"

Still perplexed, Matheson paid and climbed out of the cab.

The fortress-like image of the hotel was heightened by its entrance. In an antechamber just inside the door, he was greeted by two armed guards and a reception screen. The guards eyed him narrowly. "Face the screen and state your name and purpose of your visit," one of the guards told him.

Growing more and more irritated, Matheson turned toward the blank screen. "Clancy Matheson of Blue Sands, Mars Colony. I'm *supposed* to have a reservation here."

The screen hummed to itself for a moment, then an amber light flashed on. "Your reservation is in order, sir," the guard told him. "Please step closer to the screen and present your hands for fingerprint recording. Then you may go in."

Matheson did so. The screen hummed to itself for a second longer, then the light flashed green and a steel door at the other end of the chamber slid open.

An hotel official met him just beyond the door. The lobby proper, except for its lack of windows and rather an abundance of uniformed guards scattered about, was more in keeping with Matheson's idea of what an Earth-side hotel should look like. And the red-carpet treatment arranged by his uncle's lawyer did much to rinse away the sour taste

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his first few hours among homeworlders had left in his mouth.

"Welcome to Kreston Complex, Mr. Matheson. I hope we can make your stay and your adjustment to homeworld ways more pleasant. Mr. Westgate has reserved a room for you on the thirty-third level, near the theater and gymnasium. He also suggests that, after you've rested, you might like to join him for dinner. He'll be in the roof-garden restaurant at eight-thirty."

"Thank you. Now if you don't mind, I would like to go to my room to rest for a while."

"Certainly, sir. Shall I summon a porter or would you rather carry your own bag? Many people do—the danger of theft, you know."

Two hours of rest, a shower, and a change of clothes later, Matheson joined the lawyer in one of the hotel's several dining halls. Henry Westgate came as something of a surprise. He was in his late fifties, and his portly frame and conservatively flared tunic of an earlier generation gave him the weight of dignity his profession demanded. Still, he had a quickness of body and twinkle of eye that belied his years, and his manner was considerably more lively and less stodgy than Matheson had expected from his letters.

"Sorry to have put you to the trouble of a trip back to Earth," Westgate apologized once the introductions had been taken care of and they had been served their meal, "but it was necessary under the terms of your uncle's will. I don't know whether you realize it or not, but that will makes you a man of considerable importance."

"Really? I hadn't realized Uncle Mike had much money."

The lawyer carefully dissected a piece of soy-steak and popped it into his mouth. "Not money alone, young man. Power. I don't know how you colonials measure things, but in the culture of Earth, it's power that's the measure of the man."

Matheson found himself bridling again involuntarily. "We're not totally unacquainted with the benefits of personal power, Mr. Westgate. Of course, being primitive, a good part of our energy is directed toward staying alive and keeping the planet from swallowing us, but we have our pockets of corruption and egomania nevertheless. There's even hope that, in a few generations, we might devolve into a society as 'civilized' and convoluted as that of Earth."

The older man smiled at him patiently. "Now simmer down, lad. I didn't drag you all the way from Mars to start another colonial-homeworlder squabble. And, heaven help you, I certainly hope you never turn your planet into the stinking hive that Earth is. I'll wager that survival is a chancier proposition here in this city than it is even on your homestead."

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Matheson relaxed a little and let the anger begin to drain out of him. "It might be at that. I meant to ask you about this curfew business. How do people conduct their social lives? How did you get here tonight, for example? Do you live in the hotel?"

"Not usually. I have an apartment across-zone. But I sometimes stay here overnight. It's near my office." The lawyer shook his head sadly. "Most people have no social life in the old sense. Or if they do, it's prepackaged and piped into their self-contained fortresses over the tri-D. Once the working day is over, there's a mass stampede for triple-bolted hidey-holes or guarded enclaves. The private community has become a way of life. Many people live where they work now, in corporation apartments or in nearby hive complexes like this hotel. In the residential zones, the neighborhood compound is the thing. I suppose we're developing toward a clan culture again. Of course, there are some who still try to go it in the old way, but they don't last long. If the crime rate doesn't get them, the ferrets and banshees usually do."

"The cab driver said something about the ferrets and banshees, too. What are they? Local street gangs?"

Westgate looked at him in surprise. "You don't know about them? You colonials are more out of touch than I thought." He positioned his silverware carefully on his emptied plate and pushed it away from him. "No, they aren't street gangs. Something worse. Finish your meal and come out on the roof garden with me. I'll show you a banshee."

The topmost level of the hotel, Matheson discovered, covered only about half of the total area, leaving a large expanse of roof space which had been transformed into formal gardens with walkways and secluded benches. Delicate, artificial lighting enhanced the natural moonlight, creating subtle patterns of silver and shadow amid the greenery. However, instead of being left open to the night sky, the roof had been enclosed in a clear bubble of plastisteel, requiring an intricate system of air-conditioning to create the illusion of cool summer breezes.

"It's nice up here," Westgate said. "A place for friends to meet and talk after the labor of the day. A place for lovers to stroll in the moonlight and whisper the trivial importances of youth. But it's all a fake . . . an artificial, hothouse substitute for the real night we can't have." A dark shadow flitted overhead and Matheson peered upward through the plastisteel, trying to make out what had caused it. "And even roof gardens like this aren't popular any more," the lawyer continued bitterly, gesturing vaguely toward the bubble overhead, "because of them. Mankind has abandoned the night."

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"Surely the crime situation can't be as bad as that."

"It is. Oh, I know it's always fashionable to cry that the world is going to the dogs. Forty, fifty years ago, when I was just a kid, they were already screaming about the breakdown of law and order, and crime in the streets. But things got steadily worse as the population grew and the cities spread, until finally the authorities just couldn't deal with the situation. Do you have any idea what it takes to provide even the inadequate police force we have for this city today? Not to mention guards and private police employed by businesses and residential enclaves?"

Matheson shook his head. "So you finally had to declare a permanent curfew?"

"Exactly. Oh, there was a hue and cry about it, but it was just another case of the public safety having to take precedence over the rights and privileges of the individual. The authorities could concentrate their efforts on maintaining order during the daylight hours, and could hold their own after dark with a smaller force."

Matheson looked skeptical. "And did it work?"

Westgate snorted. "Of course it didn't work. It made criminals out of a lot of otherwise law-abiding citizens and made things a little riskier for the real criminal element, but the rapes and robberies and murders went on as before. Still, the public in general finally came to accept the principle of the curfew, and that laid the groundwork for the next logical step."

"What was that?"

"Why, greater efficiency, of course. They automated the curfew."

"Automated the curfew? What do you mean?"

Westgate pointed up through the plastisteel bubble. "That's what I mean. There's one of the banshees now."

Looking upward, Matheson saw a dark, triangular shape drifting slowly through the sky. It seemed to hover for an instant above the roof garden where they stood, rocking slightly so that it almost gave the appearance of having two great, flapping wings. Then it veered slightly and glided aimlessly off in another direction.

"What was that?" Matheson gasped. "It looked like a giant bat."

"More like a devil ray," Westgate said. "I suspect the shape was chosen deliberately for its latent superstitious value. The ferrets are smaller and more ratlike. They scuttle around in the streets."

"But what was it?"

"A mechanical device. The official designation is MASP—Mobile Area Security Patrol. The ferrets came first. The banshees were a later development, equipped with hover blades to give them mobility in the air. They're practically

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soundless in normal flight, but they have a tendency to screech at high speeds or when they dive, which accounts for their popular name. Considering their size, the ferrets and banshees contain an amazing variety of sensors—motion scopes, body-heat detectors, olfactory scanners, what have you. I've read somewhere that they even have a gizmo that picks up brain waves. They're programmed to select only those readings which fall within the ranges of a human being as targets."

"Targets? You don't mean they . . .?"

"But, of course. That's the point of them. Anybody on the streets after dark is breaking the law. Their job is to stop lawbreakers. I doubt that the stories that they actually devour their victims are true, but I understand they are rather effective in their work."

Matheson stared after the disappearing banshee in disbelief. "But that's incredible. You can't just kill anybody who happens to be on the streets—law or no law. What about people who have to be outside? I'm surprised the public will put up with it."

The lawyer chuckled. "You colonials are so damned uncynical about human nature. If one does something slowly enough—in stages, and always in the name of the common good—the public will accept and adjust to almost anything. Oh, there's a good deal of hidden resentment, coupled with an almost universal fear of the things. And every so often we have a minor riot when some stalwart band of citizens declares war against them. But it's never anything the police can't handle. And, of course, you're right about the need for some people to travel at night. There are exceptions. If, after due application, one can convince the authorities one has a legitimate reason for being abroad, the police issue a special night-passage transmitter which sends out signals on pre-programmed, variable frequencies to warn the ferrets and banshees off. But the reason must be overwhelming, and the controls on issuance and accountability for the transmitters are extremely tight. Their random frequency programming makes them impossible to counterfeit, and their limited period of use renders them of little value to the criminal even if he gets possession of one illegally."

Westgate studied Matheson intently. "And that's the part of this whole story which concerns you."

Matheson started in surprise. "Me? Why me?"

The lawyer eased himself onto one of the stone benches. "How well did you know your uncle, Matheson?"

"Not very well. I was only seven when Dad took the family to Mars Colony. He tried prospecting out

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around Shatterpeak for a while, then settled into one of the research labs at McQuire. Then, when my mother died, he packed us up again and headed out to try homesteading at Blue Sands. We never came back to Earth and I never saw Uncle Mike again. That's why I was so surprised when you wrote to me about his will."

"Well, he remembered you. He divided the bulk of his estate—most of the money, I'm afraid—among several old friends and, er, business associates." Westgate's tone gave a peculiarly unsavory inreaction to the phrase. "But he left his personal effects and, more important, his business papers to you—with the stipulation that you returned to Earth to claim them."

"His business papers? What would I do with the records of a homeworld business? I don't even know what he did."

"Michael Matheson was a strange man in many ways, but he was, without doubt, the best free-lance espionage agent in the business."

"Espionage? You mean he was a spy?"

"Not the kind you're thinking. A corporate espionage agent. The big firms today are more jealous of their secrets and their plans and processes than any mere nation ever was. And where one person has a secret, there's always someone else willing to pay to find it out. There's a great deal of money to be made in corporate espionage on Earth today. And not only money. Power!"

"But I don't know anything about espionage, corporate or otherwise. I'm a homesteader. What could I do with Uncle Mike's papers?"

Westgate smiled a superior, homeworld-type smile. "That's up to you, Matheson. You might want to carry on his practice. Michael apparently thought you could do it. But whether you do or don't, the legacy can make you a well-to-do man by Mars Colony standards. Those papers contain information that should bring half a million credits in the confidential market. I've been through them, of course, but no one else has. They're yours to dispose of."

The lawyer studied the homesteader carefully. "But there appears to be something else. That's the main reason I wanted to talk to you. I don't know what it is, but your uncle left a special bequest for you in trust with another man—a shady, underworld character by the name of Querco. He specified in his will that you are to pick it up from him."

"What kind of hocus-pocus is this? How does Querco fit into the picture?"

Westgate shrugged. "As I said, your uncle was a strange man, with his own way of doing things. He never put much trust in official channels or ordinary safeguards. This Querco is a petty crook and

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would-be operator who's been slithering back and forth across the fringe edge of the law for years. Apparently Michael had some business dealings with him and felt he could be trusted. When I found out about this mysterious bequest, naturally, I tried to get in touch with him and discover what it is. It was no use. He won't deal with anyone but you personally. But there's a catch. Although Querco is not officially wanted by the police at the present time, he is a cautious man, and there are those who might like to see him out of the way. Querco is willing to meet with you, but he insists that it be at a place of his own choosing, and it must be at night!"

By nature, Matheson was a light sleeper and an early riser. That night, however, his gravity-wracked body sank exhaustedly into the mattress, and his leaden slumber churned with nightmarish dreams of lurking men in sinister black capes and of hovering shadows stalking them silently through the blackness. He woke with a start, aware that he had overslept the morning by several hours. He was also suddenly aware that he was not alone in the hotel room. Someone was systematically searching his luggage.

Cracking one eye open, Matheson studied the intruder. Tall, blond-haired, perhaps in his early thirties, the man was dressed in the foppish, lace-and-ruff fashion that was currently coming into style, although his broad shoulders and muscular leanness were anything but effeminate. He seemed to be taking no particular pains to be quiet in his search, even chuckling softly to himself as he rummaged through Matheson's meager possessions.

Rolling out of bed in a crouch, Matheson froze as the stranger spun toward him, a small sleeve gun appearing magically in his hand. "Hold it, colonial," the stranger warned him. "These things are erratic, but they hold two shots and they're effective enough at close range. You'd never reach me."

Matheson straightened slowly, his gaze fixed on the gun. The stranger slouched casually against the luggage stand, his mouth twisted in a lopsided grin of amusement. "Very careless of you, Mr. Matheson. You forgot to put up the security shield on your room last night. Any hyped-up sneak-thief or burglar in the zone could have picked that lock and got in here."

"So I see. Tell me, is rifling hotel rooms the full extent of your talents, or are you looking for something special?"

The stranger laughed and tucked his gun back into its spring-loaded sleeve holster. "You'll have to forgive me. Going through other people's things is a bad habit of mine.

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But it's always nice to know a little something extra about the people one hopes to do business with." He dismissed his inquisitiveness with a shrug. "My name is Rick Jamster, Mr. Matheson. I came by to talk to you about a business proposition."

"What kind of proposition?"

Hooking the room's desk chair with the toe of his polished, plastron boot, Jamster yanked it toward him and straddled it backwards, sitting with his elbows propped carelessly on the curved back. "I'm willing to pay you one million credits. A million credits worth of equipment—power packs, moisture converters, heavy-duty crawlers, whatever you want—all delivered transport-paid to you at First Site. You only have to do one thing to earn it, Matheson . . . go back to Mars!"

Matheson gasped mentally, trying to comprehend what a million credits worth of transport-free gear would mean for his struggling homestead. It would provide more than just greater comfort and convenience. It would strike a significant blow at the basic hostility of the planet itself, hastening that sought-for day when Man would be master rather than interloper.

"Your generosity is not only overwhelming, it's an insult to my intelligence. Why should it be worth a million credits for me to go home?"

"It's simple. You've just inherited Mike Matheson's personal files. I'm buying you out."

"A million credits for Uncle Mike's files? Plus transport charges?" He forced himself to relax, and sat down on the edge of the bed. "Henry Westgate estimates that the whole lot is probably worth less than half that."

"They probably are, Matheson . . . to you. But they're worth more than that to me. Do you know who's in the market for a new algae bleaching process these days? And where would you get top price for a peek at next year's Martello designs? In the right hands, those papers could bring over two million." Jamster smiled his lopsided smile. "So you see, it's not so suspicious after all. We'll both profit. A deal, Matheson?"

"Does your offer include the Querco bequest?"

Jamster hesitated and looked at Matheson, frowning slightly. "What do you mean? What's Querco got to do with this?"

"Skip it." Matheson considered the man's offer, weighing the future of his homestead against the irksome puzzle of the will. A million credits was more than he'd ever expected to get out of this trip, and he certainly had no desire to prolong his stay on this rude, uncomfortable planet. Still, Uncle Mike seemed to have gone to considerable trouble to make sure he got something, and his colonial

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stubbornness told him he should at least find out what it was. Besides, Jamster's cocky self-assurance irritated him.

Getting to his feet, Matheson started toward the bathroom. "It's a tempting offer, Jamster. Too tempting. But I think I'll keep what I have, at least until I've seen it. Now, if you'll excuse me, I have to shave and get dressed."

Jamster rose angrily. "Don't be too hasty, colonial. Earth's a lot different than Mars Colony. People can get hurt here if they rush into things."

Matheson paused in irritation, gesturing toward his opened bag. "Oh, there's no rush, Jamster. Take all the time you want. Just be sure you repack everything when you leave." Ignoring the sputtering homeworlder's scowl, he closed the bathroom door behind him.

After breakfast, Matheson called Henry Westgate, who confirmed that Rick Jamster was a colleague of his uncle's. A wealthy playboy who dabbled in espionage more as a pastime than as a profession, the man was notorious for his uncanny ability to sense and seek out potentially profitable developments in the twisted halfworld of corporate espionage.

"Anything new on Querco?" Matheson asked.

"No. He says he'll be waiting to meet you tonight at the location I told you about . . . although how you're going to get there is beyond me."

"I'm working on that now," Matheson assured him. "Oh yes, one last question. What happens to Uncle Mike's papers if I go back to Mars Colony?"

Westgate hesitated. "The will stipulated that you must return to Earth to claim the inheritance. Since you're here, all you have to do is sign the documents officially claiming it. Then you can dispose of it anyway you want to, whether you go back to Mars or not. If for some reason you left without formally claiming it, however, I suppose the estate would be confiscated by the Government under the Unclaimed Inheritance Act. Why?"

"Nothing," Matheson mused. "I was just curious."

It was late that afternoon when Matheson sat in the small office at police headquarters. The office was drably furnished with a mixed atmosphere of spartan utilitarianism and low appropriations, and the frowning police lieutenant who sat across the desk seemed cut from the standard mold of unsympathetic officialdom everywhere.

"Look, Matheson, we've been all over that," Lieutenant Blatski was saying impatiently. "You say that, in order to meet the terms of the will, you have to meet this Querco somewhere in the warehouse district. That's your prob-

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lem. I couldn't care less about you or Querco. But when you ask permission to do it at night, it becomes my problem. And the answer is No."

"Lieutenant, all I want to do is meet the man and get something he has for me. What's wrong with that? The night meeting is his idea, not mine. Surely you can grant an exception to the curfew in this one case."

"Why should I, Matheson? The law says that, for the good of the citizenry as a whole, people must stay off the streets at night. Besides, I have only your word for the whole Querco story. Your uncle was involved in a good many questionable deals. And you're a colonial. Who knows what kind of mischief you might be cooking up out there in the darkness."

Matheson leaped to his feet angrily. "So now we come to the truth of the matter. You don't like colonials much, do you Lieutenant?"

The policeman met his glare without expression. "No, I don't. I don't like Martians with chips on their shoulders, who expect all sorts of special treatment and consideration, then start screaming discrimination when it's denied. I don't like young hotheads who barge in here fresh from the backlands of Mars Colony and start telling me how to do my job—in a city with twice the population of all Mars put together. And I especially dislike naïve offworlders who blunder around on the streets after dark, getting mixed up in things they don't understand and creating more paperwork for me by getting killed in my zone. Go home, Matheson. You don't begin to understand how things are on Earth."

Matheson picked up a small-scale replica of one of the banshees from the lieutenant's desk and examined it. When he spoke again, his voice was calmer but more determined. "I'm getting a little tired of having you homeworlders tell me I don't know the score, Blatski. I understand there are an awful lot of people out there who resent the curfew and these mechanical watchdogs of yours. All it would take is one good spark to turn that smoldering resentment into a real fire. And there are also a lot of colonials like me who are tired of being put down and condescended to by smug Earth-siders. I know how to reach them and I speak their language." He dropped the replica on the desk and stared at the policeman coldly. "I don't know what it is Uncle Mike wanted me to have, but it seems to be something important and I mean to have it. If I have to, I'll raise a fuss that will turn this city upside down. Maybe a demonstration in the streets . . . at night. And in order to suppress it, you'll have provided the spark needed to kindle a general riot. You talk

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about extra paperwork, Lieutenant. Think about that for a while."

Lieutenant Blatski leaned back in his swivel chair and locked his hands behind his head. A hint of a smile quivered at the corners of his mouth. "You know, Matheson, if I didn't hate dumb people so much, I think I could learn to like you after all. Yeah, you could probably stir up a lot of trouble among the tourists and visitors—especially the students. You might even get some sort of public demonstration mounted—assuming I didn't arrest you and have you deported back to First Site right now. But all right, I'll issue you a night-passage transmitter. The pack will only be programmed for six hours, and you'll have to stay within the area you've designated, but you can meet Querco. But do me a favor, Matheson—try not to get yourself killed on my beat."

It was well after sunset that evening when Matheson set out for the rendezvous. The N-P transmitter was a rather awkward thing to carry—a side pack slung over the shoulder by a long strap. ("We don't want it small enough to conceal easily," Lieutenant Blatski had told him, "yet we don't want people putting it down somewhere and forgetting it.") The hotel guards had seemed startled when he left the safety of the fortress-like Kreston Complex, but, seeing his transmitter, had passed him without comment. There was no public transportation at that hour, so, following the instructions Westgate had given him, Matheson began to walk through the deserted city.

The silence and emptiness of the streets were hair-tingling after the jostling crush he had become accustomed to. No sound answered the echo of his footsteps but the rustling scamper of unseen objects from alleys and doorways. Occasionally the twin red lights of beady, ratlike eyes would glimmer up at him from the shadows, or a dark, triangular shape would swoop noiselessly overhead. But, though Matheson had the sensation of menacing creatures crouching or hovering all about him, nothing disturbed his passage and he saw no other person.

It took him a little over two hours to reach the rendezvous. The stores and towering offices had long since run out, and he was in a gritty, run-down neighborhood of seedy warehouses and darkened garages. Turning down a narrow alleyway between two looming brick buildings, he hesitated a moment, listening. Hadn't he heard something behind him? Nothing moved on the unlighted street and, except for the clicking rattle of ferrets over the pavement, he heard nothing now. Angry at his own nervousness, Matheson continued down the narrow passageway.

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The alley halted abruptly, making a sharp turn to the left and continuing on into utter darkness. Where it turned, however, a door in the back building stood slightly ajar, flanked on one side by a grime-muffled, steel-barred window. Matheson ran over the instructions Westgate had given him again. This should be the place, yet there was no sign of life. Pushing the door open, he stepped cautiously inside.

"Hold it right there, bucko. You're covered." The beam of a glow-lantern shot out of the darkness, setting him up in a target of illumination and momentarily blinding him. "Well now," the voice continued, "you look enough like Mike to be his nephew. Now suppose you just set yourself down at that table there and sit quiet like, while I make sure you're alone."

Obediently, Matheson sat down in a rickety chair, slipping the awkward transmitter pack off his shoulder and setting it on the floor beside him. After several moments of silence, a runty figure stepped out of the shadows and crossed to the door, snapping shut some sort of electronic instrument.

"A handy little gadget your uncle gave me," the figure said. "Those N-P transmitters give off a buzz you can read for blocks. And it is sometimes mighty comforting to know when you've got company."

Closing the door, the man placed the lantern on the table and faced Matheson. He was a short, scrawny man with dirty gray hair and a crease-lined face. He carried a snub-nosed pistol in one hand, and, considering the glint in his watery blue eyes, Matheson was convinced he would have no compunction about using it.

"I'm Querco. Who are you?"

"I'm Clancy Matheson, Michael Matheson's nephew. I understand you have something for me."

The thin-faced old man regarded him suspiciously. "Mebbe. Mebbe not. Mike Matheson helped me out of a few tight places in his time, and I was able to do the same for him once or twice. But neither one of us would have lasted long if we weren't careful about things. I'm supposed to ask you two questions first. What was the present your uncle sent you for your nineteenth birthday?"

Matheson looked at the old man in surprise. "For my nineteenth birthday? Why, he didn't send me anything. That was the year my mother died and Dad moved us out to the homestead. Uncle Mike wouldn't have known where to reach me even if he'd wanted to."

Querco nodded and picked up a small bundle wrapped in colored cloth from the floor. Untying the bundle, he spread the cloth on the tabletop and laid out an array of old watches, rings, tunic clasps, and other odds-and-ends of per-

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sonal possession. "Now for your second question. There should be something on that table you remember. What is it?"

Matheson considered the assortment of junk. All of it showed signs of wear and long use. Could one of the objects have belonged to Uncle Mike? He racked his memory, trying to conjure up a picture of the man who was responsible for this guessing game. He'd been nobody's fool, that much was sure. And that first question showed he was no respecter of the obvious . . . Of the obvious. Of course . . . Matheson studied the tabletop again, remembering the day the family had shipped off for Mars Colony. Remembering the large, bluff man in the flamboyant tunic who had come to see them off, grandly squeezing a glittering twenty-credit piece into Matheson's youthful hand and laughingly instructing him to tie a knot in the tail of Mars. Smiling to himself, Matheson turned back to Querco.

"The cloth. Uncle Mike had a tunic made out of that material. It must have been a favorite of his. He wore it a lot as I remember."

Querco grunted. "Well, you know the answers, so you must be the one. Your uncle left me two messages to give you. One was a warning—to do what you thought best with what he was leaving you, but to trust nobody and no thing. The other message was to 'look behind Shatterpeak; the key is your father's birthday.' "

Matheson looked at him in annoyance. "That doesn't make sense. Is that all he told you?"

Querco shrugged. "That's all he told me, bucko. But if I knew Mike Matheson, it must mean something."

Suddenly the man's gaze traveled beyond Matheson toward the window, and his eyes widened in surprise. Muttering an oath, he darted toward the glow-lantern, but there was the explosion of a shot and the sound of tinkling glass. Querco twisted jerkily and collapsed on the warehouse floor.

A quick check of the body convinced Matheson that the man was already dead. Knocking the lantern off the table, he started toward the doorway in a low crouch. Charging out into the alley, he halted for a moment, peering into the blackness. Then something struck him heavily on the back of the head, and he rolled sprawling onto the slimey cobblestones of the alley. Clinging doggedly to a hairline thread of consciousness, he began to climb groggily to his feet again, looking around. There was the sound of a bolt sliding home as somebody locked the warehouse door from the inside. And then the full import of his predicament hit him.

Someone had shot Querco through the barred window, then

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waited in the shadows until he had blundered blindly into the trap. Then, while he had been picking himself up out of the gutter, the killer had slipped into the warehouse and undoubtedly was even now making an escape through the maze of storage rooms and crates of merchandise. Meanwhile, Matheson was locked out in the alley with no way to get to his protective N-P transmitter inside the warehouse. And already he could hear the chilling click and rattle of the mechanical ferrets scuttling toward him in the darkness.

Wheeling desperately, he set out at a frantic run down the alley, stumbling and sliding on the uneven cobblestones. Something nipped at his leg in the blackness, and he lashed out with a terrified kick, feeling tiny, needle-pointed teeth slash at his ankle as he did so. Breaking away, he ran a few steps farther, but his leg began to go numb with prickling pain from the bite, and he staggered, falling against the brick wall with a crash. Groping around for anything he might use as a weapon, he snatched his hand back painfully as something else bit him in the fleshy part of the hand. Almost immediately, the hand, too, began to go numb.

The damned things are poisonous, Matheson thought in panic. His vision began to blur and his head spun as his bloodstream spread the chilling numbness to other parts of his body. Then, with a sense of helplessness, he slumped back against the gritty wall of the building and listened to the snapping of thousands of tiny teeth as the main swarm of ferrets caught up with him.

"O.K., colonial. Snap out of it."

Opening his eyes painfully, Matheson peered upward into the angry face of Lieutenant Blatski. A quick glance around showed that he was no longer in the alley behind the warehouse, but lay on a couch in a small office of some kind.

"Lieutenant? Wh-what happened?"

"You had to be the big man, Matheson, remember? No one was going to push you around, or tell you what to do. You had to go charging into the thing blindly, or else you were going to bring the whole city crumbling down around my ears. Well, I warned you about littering up the place with corpses and causing me paperwork."

"But I don't understand. Where am I?"

"We fished you out of that alley and brought you to headquarters. And the only reason you aren't in a cell, booked on a charge of murder right now is that we can't find the gun. Nobody with the presence of mind to hide a murder weapon that carefully turns right around and locks himself outside without his transmitter pack."

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Matheson shook his head to clear it. His hand and leg were still sore and he was a little dizzy, but aside from that he seemed to be all right. "But I'm still alive? The last thing I remember was the ferrets."

The lieutenant snorted. "Oh come off it. You're not that dumb. Even a dewy-eyed colonial like you can't believe a government would turn swarms of murderous robots loose to prey on its citizens. The more ignorant part of the public might believe it, but not the man Michael Matheson bequeathed his private files to. The MASPs are surveillance and apprehension robots only. Oh, I won't say that some people haven't been chewed up rather badly and one or two killed. But once the MASPs have rendered their target unconscious, they go into guard status until we can get someone there. They also trigger an alarm to make sure we do. The banshees are even equipped with infrared tri-D so we can monitor the thing visually if we want to."

Blatski pushed a mug of steaming coffee into Matheson's hand. "Drink this, it'll help," he said. "You didn't really think I'm a dumb enough cop to let a hothead like you charge into that neighborhood to meet Querco without keeping some sort of tab on the situation, did you? The night-passage transmitter not only sends out a keep-away warning to the MASPs, it also transmits a coded recognition signal which the MASPs relay to headquarters. On the big board in back we can keep track of every authorized transmitter pack in the city. And I had men watching your light with special interest. I've been curious about Michael Matheson's mysterious bequest ever since I first learned that Westgate had put out the word for Querco, trying to arrange a deal. I knew where your rendezvous was as soon as you went to rest. The alley was too narrow to get a banshee in there for visual check, but when we got the MASP apprehension alarm, I highballed a team over in a hurry."

He paused to study Matheson with mixed anger and disgust. "And now, like I said, I've got a body on my hands and no one I'd rather pin the charge on than you. It wouldn't take much for me to ignore the improbability of the situation and slap you in a cell. But I want to hear your version of it. What happened?"

Briefly, Matheson recounted the events leading up to the attack by the ferrets. Blatski shook his head negatively. "It won't wash, Matheson. According to you, the shot came from the window—from *outside* the building. Neither our equipment nor, apparently, that illegal little gizmo of Querco's gave any indication of another N-P transmitter operating within blocks

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of the warehouse. If anybody was standing outside that window, he wouldn't have had any protection against the MASPs."

"I can't help it, Lieutenant. You asked me what happened, and I told you. Maybe someone has come up with a way to nullify the MASPs."

The policeman stomped across to a window and stood looking out over the darkened city for a moment. "Keep sticking to that story, Matheson, and you'll be in that cell for a long, long time."

"Why not, Blatski?" Matheson insisted. "My uncle was a corporate espionage agent, dealing in stolen secrets and confidential devices. Somebody certainly followed me to that rendezvous tonight and fired the murder shot through the window. You've got to at least let me check out the message Querco gave me. Whoever killed Querco heard it, too, and is undoubtedly following up on it now."

A second policeman entered the room and handed Blatski a slip of paper. They conferred together in whispers for a moment, then Blatski grunted in surprise and turned back to Matheson.

"You may be right at that, Matheson. Something has just come up that might substantiate your theory. Some kids in an apartment across zone saw a man walking down the street and, thinking it must be safe, sneaked outside to follow him. They were cut up pretty badly by the MASPs, and at least one of the neighbors who rushed to their help may have been killed. We've got a good sized riot on our hands, with half the neighborhood taking potshots at banshees and police patrols alike. But the interesting thing is the man the kids set out to follow. Several people claim to have seen him, and they all agree he wasn't wearing or carrying a transmitter pack of any kind."

He turned to the other policeman. "Have them pull out all the MASPs patrolling the area of the riot, and start pumping civil disturbance squads in there fast. Full treatment—sonic projectors, dispersal gas, disorientation grenades, the works. If we nip this thing soon enough, it won't have a chance to get out of hand. I'll grab a hovercar and run over to the scene myself as soon as I take care of our colonial friend here."

The second policeman nodded and hurried from the room. Matheson put down his coffee and got unsteadily to his feet. "Take me with you, Blatski. That man may be Querco's killer."

Lieutenant Blatski shook his head. "Not a chance, Matheson. You stay in a nice safe cell, somewhere where you can't get hurt—and can't stir up any more trouble." He turned to the door to summon a guard.

It was then that Matheson hit him.

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Grunting, the police lieutenant crumpled under the chop and lay still. Matheson leaped across him and put his ear to the door. Hearing no sound of alarm, he locked the door and turned back to Blatski. The policeman carried no handcuffs or other means of constraint, so Matheson tore strips from the lieutenant's uniform tunic. Then, satisfied that he was securely bound and gagged, Matheson rolled him out of sight beneath the couch and looked around the office.

It was seemingly used as an interrogation cubicle of some sort, and was bare except for the couch, a few chairs, and a small table. It had just the one door, and a single, mesh-barred window. Some of the plaster around the wire mesh was crumbling and Matheson was certain it could be pried free with a little effort. Otherwise, there was nothing.

Matheson wasn't sure exactly why he had jumped Blatski. As an offworlder, he had no real hope of eluding a police search for long, even if he could escape from headquarters. Yet with events moving as rapidly as they were, he didn't dare let himself be locked up and taken out of action. Even now the killer must be struggling with the riddle of Querco's message, and there was a very real possibility that Blatski might try to pin the rap on him after all. He had to do something.

The voices of on-duty policemen from the other side of the door precluded using it as an exit. It would have to be the window. The room was obviously on one of the upper stories of the building, and Blatski had said something about a hover-car. If there was a garage on the roof, he just might make it. If there wasn't . . . Matheson stared down at the darkened street. Well, that was another matter. Despite what he'd learned about the MASPs, the memory of the scrabbling horde of ferrets still sent shivers of terror down his spine. He had no desire to try the streets unprotected again.

Prying loose the steel mesh with a broken chair leg, Matheson screeched open the age-cemented window and leaned far out, drawing the cool night air deep into his lungs. The roof was two stories above, and the weathered face of the ancient building would provide precarious handholds between its massive, granite blocks. Cursing the Earth, its gravity, and all its ways, Matheson swung himself through the window and began to inch his way upward. Progress was agonizingly slow, and his cramped fingers screamed in pain as they clawed for grips on the slippery stone.

He had covered only two-thirds of the distance when he suddenly became aware of the banshee. It was drifting silently toward him,

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its devilish shape rocking slightly in its relentless hunt for human prey. If it spotted him now, he knew, he was finished. Merely brushing his body with its wing would be enough to send him crashing downward toward the pavement below. And if the tri-D relay was in operation, he could expect half the police force waiting for him on the roof in any case.

Hugging himself against the side of the building, Matheson froze, trying to merge himself with the weathered granite. He had no idea how sophisticated the banshee's sensors really were. They were obviously effective against moving targets in the streets, and the banshees apparently had the capability of attacking unauthorized vehicular traffic. Still, there had to be some sort of slop-over of sensor readings from within the building which the banshee was programmed to ignore. Perhaps if he hung still enough . . .

For several breathless minutes, the mechanical hunter bumbled menacingly about over the police building. The heavy, Earth-normal gravity clutched at Matheson cruelly. Then the thing turned and began floating off in another direction. Matheson remained motionless, his arms protesting in their sockets, until the banshee was out of sight. Then, with a sigh, he continued his scramble upwards.

The hover-cars were on the roof. There was no sign of a guard, but then he had hardly expected one. It would make more sense to post a guard on the inside, at the stairway or elevator leading to the roof. Who would anticipate someone climbing the outside of the building to steal a police car?

Slipping into the nearest vehicle, he assured himself that it had a N-P transmitter unit built into it, and a few minutes later he was airborne above the city. He knew the car would register on the locator board at headquarters, and that it wouldn't be long before the police realized something was wrong and came after it. But then, he didn't expect to need the car long.

Consulting a small zone map within the car, Matheson plotted the location of his rendezvous with Querco and the scene of the present riot, pinpointed for him in the darkened city below by the flashing lights of police patrols and the flames of a burning building. If the killer, fleeing from the murder site, had passed that spot, Matheson should be able to get a rough fix on his direction. Connecting the two points with an imaginary line and extending it onward, he grunted in satisfaction. The killer seemed to be headed toward Uncle Mike's apartment.

Steering toward the apartment, Matheson searched the hover-car for a weapon, but found none.

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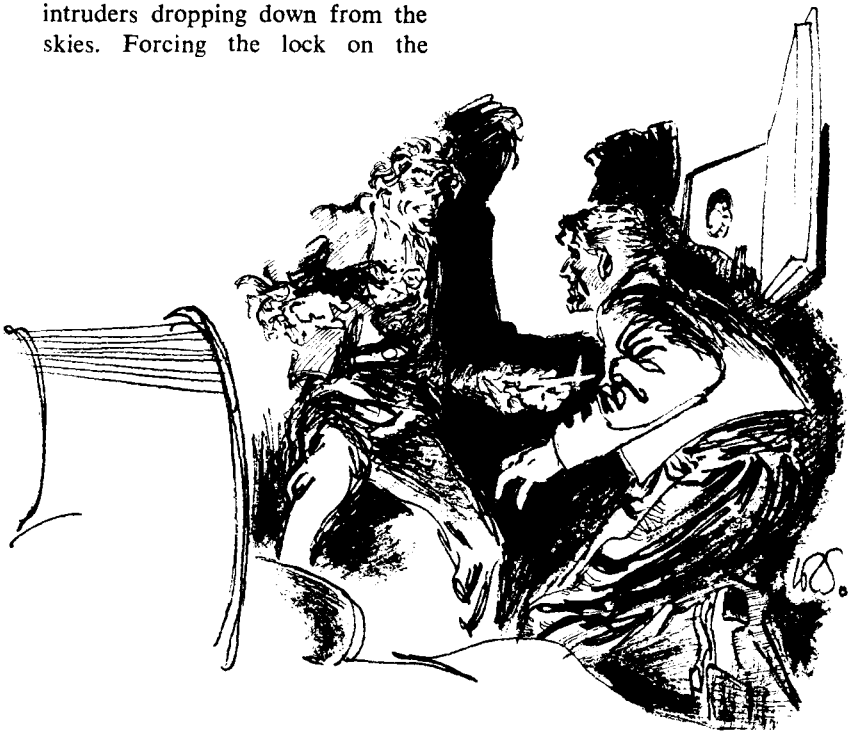
Then, swooping low over what he calculated to be Uncle Mike's building, he set the automatic pilot and jumped, crunching onto the flat roof with a thud and a roll. The car continued on its course across the city. Let the police follow it now, Matheson thought smugly.

As he had anticipated, he had little trouble breaking into the building from the roof. He was becoming familiar with the inconsistencies of the homeworld mind, and despite the almost paranoid fear of attack most homeworlders seemed to share, no one expected intruders dropping down from the skies. Forcing the lock on the roof door, he took the stairway to the proper floor and approached the door of his uncle's apartment warily. Getting into the building was one thing. But judging from the picture of Uncle Mike that was beginning to evolve, getting into the apartment itself might prove more difficult—and more dangerous. To his surprise, however, the door opened easily at his touch, swinging inward without a sound.

The door opened onto a large, exotically furnished living room, richly decorated with statuary and artwork from all corners of the



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Earth as well as from Mars and Venus colonies. Dim, solar-charged glow panels in the ceiling bathed the room in a soft half-light. To the right, a hallway disappeared toward what must be the living quarters, while another door, standing slightly ajar, led to a small office and workspace.

But what really caught Matheson's eye was a painting leaning against the left wall—a magnificent oil of the sun rising behind the jagged spire of Shatterpeak, its crystalline slope catching and refracting the first rays with a beauty that was purely Martian. Matheson recognized it as a painting his mother had done many years before, one she had sent to Uncle Mike as a special gift. The painting had been taken down from the wall to disclose a small, hidden, wall safe. And standing beside it, hunched over the dial of the safe, stood the shadowy figure of Rick Jamster.

"You beat me here, I see," Matheson said. "But not by much."

He dove as Jamster whirled, the sleeve gun jumping into the homeworlder's palm. The first shot shattered itself into the low-slung lunar chair as he rolled behind it. The second gouged a furrowed scar in the massive smokewood coffee table as he somersaulted to his feet and leaped. The two bodies crashed together, rebounding off the paneled wall and tumbling onto the floor. They grappled in grunting silence for a moment, then Jamster brought his knee up sharply into Matheson's groin and ripped himself free. Grimacing, Matheson scrambled heavily after him, but a needle-pointed stiletto sprang from Jamster's other sleeve and the two men crouched facing each other in the semidarkness.

"You're a walking arsenal, Jamster," Matheson panted. "It's a shame you didn't stay a while to make sure of the job back in the alley. It might have delayed you a little, but you would have had the rest of the night for your search."

"I don't know what you mean," Jamster said. "What alley? I've been here searching this apartment since sunset."

"Don't give me that. You shot Querco, then rushed over here to crack that safe, managing to get a few kids killed and start a small riot in the process."

The blond homeworlder circled Matheson warily, knife at the ready. "I tell you, I've been here going over that safe all along. It looks simple, but your uncle was a crafty old fox. He rigged the safe so the whole thing will blow up if somebody tries to tamper with it. I've been trying to figure out how to bypass the destruct circuits."

"If you're not checking out Querco's message then, what are you doing here?"

Jamster laughed. "Don't play innocent with me, colonial. You

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know your uncle's secret as well as I do, otherwise you would have accepted my offer this morning. Your uncle found some way to circumvent the MASPs. That's one of the reasons he was so successful in his espionage practice. I broke in here just before sunset, looking for the plans to his gadget whatever it is."

Matheson studied the man without answering. "Look, maybe we can make a deal," Jamster continued. "Your uncle's papers are legally yours, but I know how to exploit them most effectively. I provide the know-how, you provide the combination to the safe. We'll both get what we want out of it."

"And what do I get?"

Whirling, the two men saw Henry Westgate standing in the apartment doorway, an old-fashioned automatic pistol in his hand. Jamster and Westgate moved simultaneously. The stiletto whistled through the air, burying itself in the door a fraction of an inch from the lawyer's throat. Westgate's automatic barked once and the playboy espionage agent spun backwards and fell in a lifeless heap beneath the safe.

"Oh, don't look so startled, Matheson," the lawyer snarled. "Your uncle left you a warning not to trust anybody."

"I don't get it," Matheson said. "If you're the one who killed Querco, you must already have the anti-MASP device."

Westgate patted a small bulge in his tunic pocket. "A tiny force-field generator Michael picked up somewhere. I found it among the gadgets in his working kit. It sets up a thermal and energy barrier that distorts the exchange between the carrier and the outside world. With the force field around me, the ferrets and banshees can't get any meaningful readings at all. I'm free to move around again . . . like a human being instead of some caged animal."

"But, if you have the device and Jamster was right about what's in the safe, why go to the risk of killing Querco over the message? You already have the secret."

Westgate laughed nastily. "I told you your uncle had his own way of doing things. I found the one working instrument in his kit, but even that was rigged to prevent tampering. I know how to work it, but I can't find out how it works, not without it blowing up in my face. I knew the plans for it had to be in that safe, but the combination and the autodestruct mechanism had me stumped."

"Don't be too sure they still don't, Westgate."

"Nonsense. Thanks to you and Querco. I know the combination now. Your father was born on April 1, 1968. I checked." Keeping Matheson covered, the lawyer circled to the safe gloatingly. "You

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know, you were the perfect pawn for prying the combination out of Querco, Matheson. A homeworlder might have got suspicious and figured out what I was up to. But you colonials follow such a straight-line, elemental approach to things. And now, when the police find you and Jamster both dead, having killed each other, they may be as suspicious as hell, but they won't be able to prove a thing. And I'll have the secret that will make me master of Earth."

Matheson tensed. "I'm rather tired of being told how naïve and elemental we colonials are, Westgate. I know enough not to accept an obvious plant like this at face value. Don't touch that safe. It's one of Uncle Mike's traps."

"Nonsense." The lawyer spun the safe dial carefully, watching Matheson out of the corner of his eye. There was a satisfying click and the door to the safe popped open. Westgate plunged his hand into the safe after the plans. Matheson dropped flat behind the heavy, smokewood coffee table. And the apartment rocked sickeningly as the autodestruct device went off in a roaring explosion. Westgate screamed once as the force of the channeled blast hit him, then his head and upper torso splattered against the far wall.

A week later, Matheson picked his way with difficulty through the jostling press of the crowd in the space terminal, heading for the Customs & Registration desk. He stopped when he saw Lieutenant Blatski watching him.

"Hello, Blatski. You're a little off your beat. Don't tell me you've decided to arrest me for assault and jailbreak after all?"

The lieutenant smiled. "No, Matheson, we agreed we'd forget that part of it. Ballistics & Prints proved that it was Westgate who shot both Querco and Jamster, and the white-smock boys in the lab are still tinkering with what's left of your uncle's device, trying to figure out how it worked. They aren't making much headway, but it's probably just as well. As soon as we find out where your uncle got the gadget in the first place, we'll have to suppress the whole thing in any event. If its secret ever got out, I shudder to think what things would be like down here." He looked at Matheson and shook his head sadly. "It's too bad about you, though. You didn't get much out of the whole affair, did you?"

Matheson laughed. "Oh, I got enough to pay me for my trouble, Lieutenant. I unloaded some of the stuff in Uncle Mike's files for a few hundred thousand. And I'm taking Mom's painting of Shatterpeak home with me. It was damaged a little in the blast, but not seriously. It should be an important part of Mars's history some day." He hesitated, smiling at the policeman sardonically. "Oh yes, maybe you'd

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better tell your boys in the lab to stop tinkering and start shuddering. I also got the plans for the anti-MASP device."

"You got what!"

"Easy, Blatski, easy. They're already on their way to First Site in an earlier ship, so there's no way you can get your hands on them now." Matheson chuckled. "All you devious, sophisticated homeworlders were so busy concentrating on Querco's second message, that you entirely overlooked the first one. 'Trust nobody and no thing.' The safe combination alone should have been enough to make somebody stop and think. My father was born on April 1st . . . April Fool's Day. The safe was an obvious setup."

"But . . . but the message said to look behind Shatterpeak."

"Sure, and that's where the plans were. In the backing of the frame behind the painting. I retrieved them after your bunglers were done tearing the whole apartment apart."

"But you can't do this to Earth, Matheson. Think what it will mean when that secret gets out, when anybody can ignore the curfew and wander around at will. We've got a serious problem now. It will destroy us then."

Matheson shrugged. "You're probably right, Blatski, and if I could, I'd help you. If it were merely a question of the money, I'd give you the plans now and let you try to suppress them. But you forget, I'm a colonial. We need that force-field generator desperately on Mars Colony. Its thermal insulating qualities should give us just the break we need to develop a really habitable world."

"But Earth . . ." the policeman gasped, "your homeworld—"

Matheson laughed. "You still don't understand colonials, do you, Lieutenant? We aren't simply transplanted Earthmen. We're Martians, and our real homeworld is up there. We don't wish you Earthsiders any bad luck, but we're too busy growing and struggling to achieve our own destiny to worry about you. You people have already had your chance . . . and you threw it away."

Blatski stiffened. "What do you mean by that crack, colonial?"

"Figure it out for yourself, Lieutenant. This is no universe for the meek and the frightened. And anybody who surrendered the night with as little fuss as you Earthsiders did, just can't amount to very much. You can't see the stars in the daytime." ■

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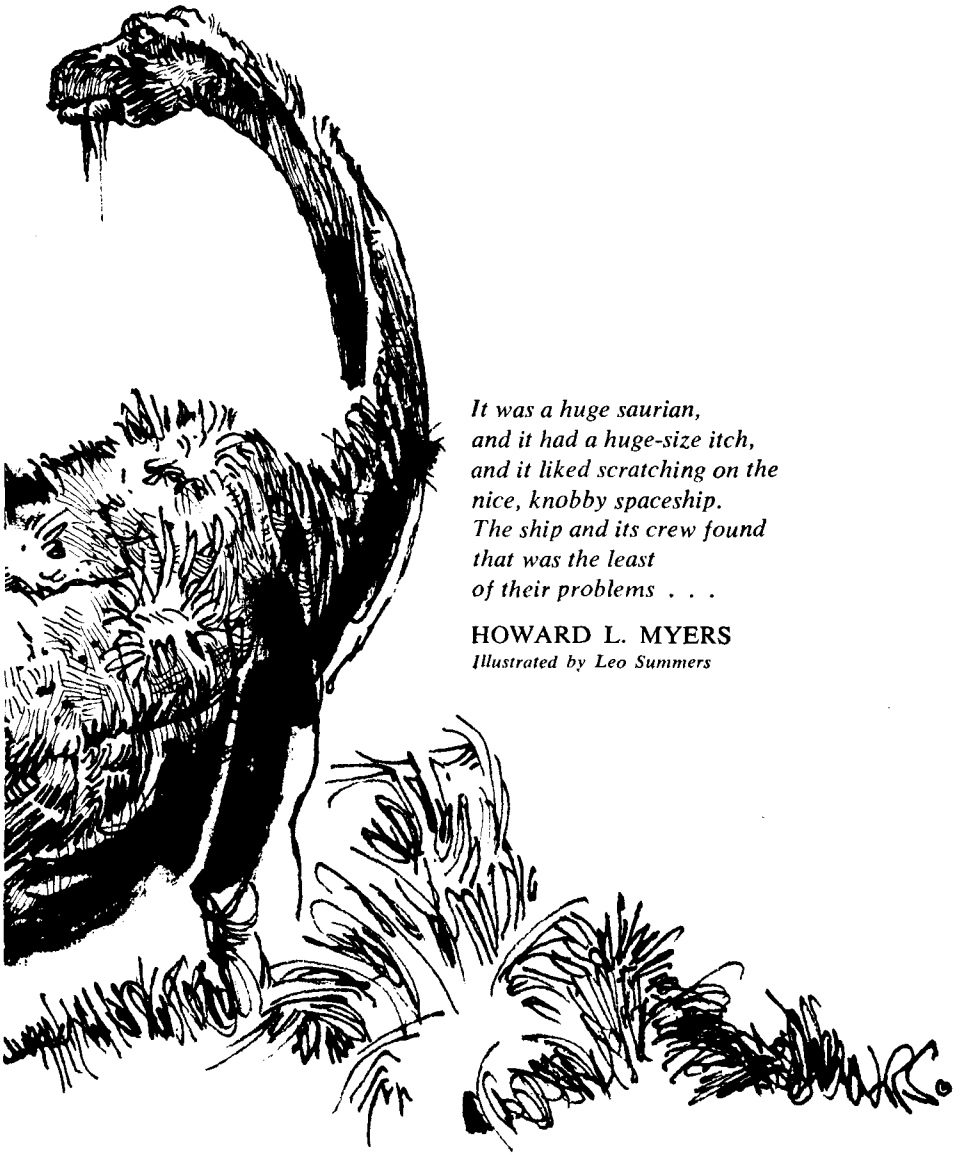
the pyrophilic saurian



It was a huge saurian,
and it had a huge-size itch,
and it liked scratching on the
nice, knobby spaceship.
The ship and its crew found
that was the least
of their problems . . .

HOWARD L. MYERS

Illustrated by Leo Summers

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The stolen port-service ship *Glumers Jo* stood two thousand kilometers out from Dothlit Three, its closrem drivers idling.

On the control deck Omar Olivine peered calculatingly at the screen as the viewsweep scanned the planet's single continental land mass.

From the chair where she was lounging, Icy Lingrad asked sourly, "What's the attraction of that stinky swampworld?"

"I'll brief everybody at once, after we land," Olivine replied. He was looking for a spot from which the ship's small tenders could explore a wide variety of life zones and geological structures without going too far afield. Perhaps a narrow coastal plain backed by one of the higher mountain ranges . . .

"I got a feeling you're a phony," Icy told him, making a flat statement out of it.

"I got a feeling you're psychotic," he replied with the impatience of a man too busy to talk nonsense. He was well and regretfully aware of Icy's low opinion of the human male. That was the source of her nickname Icy. Under the circumstances, he didn't expect her views of a particular male named Omar Olivine to be either favorable or informative.

"Whoever heard of a precious Proxad of the Space Patrol turning outlaw?" she sneered. "For my money, Proxad Omar Olivine, you're a put-up job. Once a crummy starfuzz, *always* a crummy starfuzz."

Olivine's thin lips tightened, and he came within a hair of returning insult for insult. But at that moment Charlo's voice called from a speaker: "Hey, boss!"

"Yeah?"

"You better pick a landing we can stay on a while, because the minute you turn off the closrems the main bearings are gonna freeze."

"Are they running that hot?" Olivine asked.

"And dry as bones," Charlo said. "It'll take three days to let 'em cool and another day to true them out and—"

"O.K., O.K.," Olivine snapped. "I get the message."

Icy was pursuing her thought. "You're a put-up job, and this whole deal's a put-up job. Whoever heard of a break-out working as easy as ours did?"

Olivine clenched his teeth, loathing the beautiful woman behind him and, at the same time, realizing that was exactly what she wanted him to do. It was her way of protecting herself, her defense mechanism for keeping men at a distance.

So what was the point in arguing with her sneering, repetitious insults? None at all.

But her last remark nagged at him, because the ease with which he and his five companions had escaped did look a bit fishy. Of

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course it wasn't an unheard-of practice to transfer a group of prisoners from one ship to another at a public rather than a Patrol spaceport, but it wasn't a frequent occurrence, either.

Aside from that factor . . . Olivine frowned. Well, aside from that, nothing else looked really suspicious. The thing was that a public spaceport offered possibilities, such as crowds of citizens whose presence made the Patrol guards hesitate to use their guns. And Olivine, with his Patrol background, knew how to use opportunities.

Which was something Icy Lingrad hardly could be expected to understand. She was not used to criminals who weren't nervous, slow on their feet, or slow in the head, or in some other way too handicapped to think and act with lightning efficiency when the need arose. So the escape Olivine had led would puzzle her, and probably some of the others.

But after thinking it over again, Olivine was now confident that it was his own ability, not Patrol trickery of some sort, that had enabled them to get away. It was a comforting conclusion, because he knew the Patrol's heavy computer, the CIP, knew what went on in his head almost as well as he did himself. That was what came, he thought sourly, of being an eager Proxad for seven years, and submitting willingly to hours of psychoanalytic questioning.

In more instances than one, since the day he had wised up and decided there was more to life than the low pay and right to feel self-righteous which the Patrol offered, that damned CIP had anticipated his actions. Both his arrests had been made possible by computer predictions of where he would be, and what he'd be doing.

So he had reason to feel a little spooky about the CIP. The Patrol would be working it overtime right now to get him back in custody, he figured. But it was silly to think the Patrol and its CIP had engineered the escape!

"O.K., don't speak!" flared Icy. "I wouldn't believe your lying denials, anyway!"

"What you believe doesn't concern me, Miss Lingrad," he said in a soft, cold voice, turning to give her a steely glance, "but I do suggest there's one fatal flaw in your idea that this is a put-up job. Do you think for one second, Miss Lingrad, that if I had plotted this, *you* would be the one woman aboard this ship?"

"Humpf!" she grunted, obviously stung by the grating lash of his voice.

"Ship," he said.

"Yes, sir," replied the *Glumers Jo* in the flat voice of a medium-capacity compucortex.

"Freeze the viewsweep. I'm ready to mark." The picture on the screen stopped panning, and Olivine marked a small X over

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what looked like a suitable landing site. "You got that, Ship?"

"Yes, sir."

"O.K., descend. I'll fine down the site as we approach."

Ravi Holbein came on the control deck just as the ship was touching down. He looked at the landscape revealed by the screen and nodded knowingly.

"A Jurassic-period world," he remarked brightly. "The age of reptiles, conifers and cycads . . . or," he chuckled, "reasonable facsimilies thereof. Except, of course, that this world is still in the monocontinent stage, and I believe continental drift is usually well under way in a typical Jurassic."

Olivine grinned at the distinguished-looking middle-aged man. "Right. Another hundred million years and this planet will evolve such higher life forms as con artists."

Holbein accepted the tribute with a slight bow and a quickly suppressed fraternal smile. "Such a world as this has its obvious hazards to life and limb, but can be a haven to a man in sufficient need," he replied.

"Let's hope so," said Olivine noncommittally. It was not Holbein's way to ask questions. Instead, he talked, thus inviting others to talk back. And he had an impressive line of chatter which, coupled with his appearance, had helped him into the friendship and trust of countless lonely businessmen and businesswomen on the long hauls between the stars. And he was an expert at using such friendship and trust profitably. In Olivine's private classification system, Holbein was a con man third-class—a high rating inasmuch as Olivine could distinguish at least fifteen grades of con men.

Icy Lingrad came lower on the same gradient, about ninth-class. Her success was due to her looks and her ability for staying out of beds, not to cleverness. She made an excellent assistant to an accomplished con artist, however, and that was how she usually worked.

"Closrems off," ordered Olivine as the ship's quadrupads settled into reasonably firm ground in an expanse of fernlike grass. "Ship, run an air test. All hands, please assemble on the control deck."

The three other members of the group wandered in. Smiggly Crown, the scarred and grimly silent veteran of the Dusty Roost gang wars. Autman Noreast, a blank-eyed torp of twenty-two years. And lastly, grimy from working around the closrems down in the drive room, Hall Charlo, one-time expert mechanic and current passion-crimer.

Olivine perched on the edge of a console and looked them over dubiously.

"I've had this planet in the back of my mind for a number of years," he began. "There's something

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worth grabbing here, and I meant to come grab it.

"But not with this particular crew," he sneered, "and not in this ship! A job like this ought to be done by carefully picked experts, not by a rag-tag lot that happened to be thrown together in a prisoner transfer. And it ought to be done in a ship that *fights*, not one that spits on brushfires and specializes in first aid for spacesick grandmas!"

"We don't like you either, you starfuzz stick!" snarled young Noreast.

"Glad to hear it, since I pick my friends with care!" Olivine snapped back. "But here we are, like it or not, and we all need a grab. Let's find it and make it. Then we can cash it in and go our separate ways. Any arguments?"

Crown grumbled, "We should've gone to Dusty Roost. I got friends there."

"A man with empty pockets hasn't got friends *anywhere*, and certainly not in the Roost!" Olivine retorted. "We'll go there, but not until we've got something to cash in. Now if—"

"Hey, boss!" Charlo broke in, staring at the screen, "Look at that dino out there!"

Olivine turned to glance disinterestedly at the image. The beast was a couple of hundred feet from the ship, standing at the edge of the fern meadow. It was similar in appearance to the Earth's Bronotosaurus—a massive body on four pillars of legs, a long tapering tail, and a small head riding on a neck that extended above the trees in the background. It was munching slowly on a dangling mass of greenery while it stared vacantly in their direction.

"Yeah," said Olivine impatiently, turning to face his crew again, "you can go look at the bones of similar animals in the museums of a dozen planets. We're not here to gawk at the wildlife, but to make a grab, so let's get with it! I'm going to divide us into two-man squads to take the tenders out and scout the territory for—"

"It's headed this way!" Charlo reported anxiously.

"Charlo, forget that silly saurian!" Olivine roared in disgust. "It's not going to eat you!"

Holbein intervened soothingly. "A grab at this time is a consummation devoutly to be desired, we'll all agree. And it is interesting that an unsullied Jurassic world offers such a delightful possibility of gain."

"Yeah, Olivine, what makes you think there's a grab around here?" said Icy Lingrad, putting Holbein's unvoiced question in bald terms.

"Inside information, from my days in the Patrol," he replied equably. "There was a hushed-up dispute between the Patrol and the Confederal Council after

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this world was surveyed fifteen years ago. The Patrol wanted to station manned guard ships around it, on the grounds that the local plant and animal life is extremely dangerous and no ship should be allowed to land here under any circumstances. The Council wouldn't go along with the expense of that, and insisted that a few unmanned surveillance satellites would be plenty. The Council won, of course."

"You mean we were spotted by satellites when we came in?" yapped Icy. "You led us into a trap, Starfuzz!"

"We'll be long gone before those satellites make their reports," snapped Olivine, "so cool it!"

"And this controversy between the Council and the Patrol," Holbein commented thoughtfully, "led you to the conclusion that a grab was here."

"Yes. Do you think the Patrol would give much of a damn if this planet were merely dangerous?" Olivine replied. "Who cares if a few thousand suicidal homestakers, or adventurers, get themselves knocked over by a killer planet? Not the Patrol! The only reason for wanting a manned guard would be that the Patrol discovered something here so hot that they wanted to keep it under the securest possible wraps, so hot they wouldn't even tell those politicians on the Confederal Council about it! But the Patrol had to settle for the surveillance satellites, which are enough to keep most people away."

"Yeah," muttered Charlo, taking his attention off the dinosaur long enough to ask a question, "and how did *we* get by the satellites?"

"Because I've overrode the compucortex of this ship," said Olivine. "We wouldn't have escaped in the first place if I couldn't make this ship go where I want it to, rather than where its inhibitions say it's *allowed* to go. I've overrode stronger compucortexes than this one in my time."

The others were impressed, he could see. To the average citizen, criminally inclined or not, overriding a ship's brain was the action of a master magician.

Finally Holbein murmured, "I cannot imagine the nature of the grab to be found here."

"Neither can I," Olivine admitted, "but I know damn well there is one. And that's my one reason for not being completely dissatisfied with our personnel. I don't think this bunch is one that'll take long in spotting anything of value laying around loose. So let's break this up and start looking!"

At that instant the control deck shuddered with the deafening screech of friction-tortured metal.

"What the hell's that?" Olivine bellowed over the din.

The ship's flat voice replied, "The beast outside is pressing against a padfin."

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"Well, get it on the screen!" Olivine yelped.

The view shifted to bring the big saurian in sight. It was rubbing itself against one of the erect, blade-like outer edges of the ship's supporting fins. Olivine was reminded of a kitten rubbing against a man's ankles, except in this instance the kitten was almost the size of the man.

"Well, drive him away before he warps that fin!" snapped Olivine.

"I am not equipped to do so, sir," the ship responded.

Olivine cursed and began thinking frantically.

The young torp Noreast headed for the door. "I'll give him a taste of metal!" he said.

"Hold it, punk!" growled Olivine. "There's no gun aboard unless you've improvised something. Bullets would make that animal more of a threat! We need to scare him, not hurt him!"

Noreast sneered and turned to leave. Crown collared him. "Do like the man says, boy!" he rasped.

"Animals fear fire," said Holbein. "That was one of prehistoric man's most useful discoveries, allowing him to sleep in safety . . ."

"Ship, we need a flamethrower," broke in Olivine.

"I'm sorry, sir, but I am not equipped . . ."

"It's got a nozzlehead up top," reported Charlo, "for squirting extinguisher chemicals on fires. Maybe if we fed fuel-cell juice to that nozzlehead instead we could squirt flame."

"What about it, Ship?" demanded Olivine.

"That could be done, sir. The most convenient area in which the feeder lines could be cross-connected is in the utility bay of the third deck."

"Charlo, go down there and switch those pipes around," Olivine rapped. "Noreast, if you can improvise a gun, you ought to be useful on this job. Go help Charlo. The rest of you sit tight. I'm going up to take a look at that nozzlehead."

"I ain't admitting I made no gun," sulked Noreast, but he followed Charlo down toward the third deck while Olivine scurried up the service ladder into the forecone area. He spotted the nozzlehead right away and began inspecting it.

"Ship, how's the outside air?"

"Satisfactory, sir."

"O.K. Open the slits or whatever you do to get this nozzle into action."

There was a soft whine of servos and the entire circumference of the cone showed a crack two feet below nozzle level. The crack widened as the upper part of the cone rose, supported by a central pillar, well above the nozzle's line of fire.

"How do we ignite, ship?"

"I'm sorry, sir, I do not comprehend."

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"How do we set fire to the fuel-cell juice as it leaves that nozzle?" Olivine explained in an exasperated tone.

"I am not equipped . . ."

"*Damn!* Give me the control deck! Holbein!"

"Yes?"

"I need a welding torch up here!"

Crown's voice answered. "I know where to find one."

"O.K. Get it up here, will you?"

Olivine turned from the nozzle to stare out at the dinosaur. He flinched back as he did so.

He hadn't realized the creature was so big! Its head was weaving about on the same level as his own, and with that long flexible neck the monster could easily reach over and pluck him out of his perch atop the spaceship. The dinosaur weighed, he guessed, eighty tons or more.

Why, if it put its peanut-sized mind to it, he suddenly realized, it could topple the ship completely off its pads!

But for the moment, it seemed content to rub itself against one of the fins . . . and that was bad enough. Olivine could see the stiff metal bend under the pressure from the beast, then snap straight when a rub was completed.

The beast was scratching itself! And little wonder, the man observed, because hide that filthy-looking just *had* to itch! The animal was so caked with ooze and slime that Olivine could swear some of the brighter green splotches were vegetation, growing on its body!

"Ship, does this nozzle have to be manned, or can you direct its aim?"

"I am equipped to aim the nozzle, sir."

"O.K., after we get it started, I'll duck below, because the heat's going to be bad up here. You just consider that animal out there a fire, and aim the nozzle accordingly."

"Very well, sir."

Crown stuck his head through the hatch and handed a welding torch to Olivine. "Thanks, Crown. Now clear that ladder, because I'm going to want to get down in a hurry."

Crown nodded and ducked out of sight.

A couple of minutes passed, and the dinosaur seemed to be rubbing a little harder now. The whole ship shivered with the vibrations of the fin as it scraped itself, first on one side, then on the other.

Finally Charlo's voice sounded from a speaker. "All set down here, boss!"

"Right!" Olivine lit his torch and said, "O.K., Ship, start pumping!"

For a few seconds the nozzle whooshed air, then ejected a thin line of yellow liquid under high pressure. Olivine flicked at it with the flame from his torch and jumped for the hatch. He moved

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with such alacrity that the only damage he sustained was a slight singeing of his hair, eyebrows and moustache.

And the flame was doing the trick, as his ears told him. The ship no longer shook under the strokes of the itchy saurian.

He hurried to the control deck, hoping to be in time to catch a glimpse of the rapidly retreating monster on the screen.

But the mountain of flesh wasn't retreating, as he saw in amazement. It had moved away from the fin, but was not trying to get out of the flame.

"Damn!" muttered Olivine in disgust. "I've heard of animals too dumb to get out of a fire, but this is ridiculous!"

"An amazing spectacle," agreed Holbein. "The creature's actions put me in mind of a man taking a shower."

It was an apt comparison, Olivine decided after watching a moment. The saurian was indeed behaving as if the jet of flame were water to which it wanted to expose every portion of its body. The animal clumsily cocked up each leg in turn to allow the fire to play on the inner sides of its haunches. Then like an ungainly kangaroo, it reared on its hind legs and tail to expose its belly.

"I think you're right, Holbein," Olivine said. "The damn critter's taking a firebath."

"Don't be silly!" choked Icy Lingrad in a horrified voice. "Can't you see the poor thing's *burning?* Make the ship turn it off!"

Olivine grinned at this unexpected display of compassion from so unlikely a source. But there was no accounting for the oddities of a psychotic female mind, he mused.

The animal did appear to be on fire in spots—at least to the point of smoldering, but that did not seem to bother it in the least. Probably it was the outer layer of grime, not the skin of the animal, that was being burned away.

"He seems to like it," he told the girl. "Maybe he's bred with a fireproof hide."

"Nonsense!" she raged. "Things don't evolve fireproof hides unless they *need* them! I've had enough biology to know that! Tell the ship to turn it off before that poor stupid beast is a . . . a big third-degree burn!"

The saurian closed its eyes, with lids that looked at least a foot thick, and lowered its head into the fiery blast. Then it ran its neck up through the flame. Finally, it turned around and began trying to hoist its tail, the only part of its body that remained untouched. But that was beyond its gymnastic capacities. It couldn't get its tail much more than ten feet off the ground.

"Ship," ordered Olivine, "lower the aim of that nozzle ten degrees."

"Yes, sir."

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"You cruel, heartless *snake!*" hissed Icy.

Olivine chuckled at her. "I'm just giving our friend what he seems to want," he said. "Do you know a better way to get on good terms with the local inhabitants?"

The woman sniffed and whirled away.

The flame now angled down sharply enough to bathe the saurian's tail, and incidentally set off a grassfire where it licked the ferns. Olivine frowned, then decided the fire would not spread to any extent, the grass being too green to burn well. It was producing a lot of white, steamy smoke, but not much heat.

But as soon as the saurian seemed to have had enough, and signified the fact by moving away from the flame, Olivine ordered the jet turned off.

Charlo had returned to the control deck. "I sure hope he's going to leave us alone now," he muttered.

"I think he will," said Olivine. "Fire ought to be a better cure for his dermatitis than scratching."

That evidently was the case. The saurian stood gazing at the spaceship for perhaps two minutes, and then turned away, chomping on large mouthfuls of greenery as if it hadn't eaten in weeks. Slowly it moved across a hill and out of sight.

"O.K., we've had our fun and games with the local wildlife," said Olivine, "now let's get to work. We've got a grab to make, remember?" He looked over his group. Holbein, Crown and Charlo stood waiting his instructions, and Icy had retreated to a chair in the corner of the room where she was showing her capacity for looking sullen. "Where's Noreast?" Olivine asked.

"He was right behind me when I came back, boss," said Charlo.

"Ship, where's Noreast?"

"In the second deck lock, sir."

"*In* the lock? What's he doing there?"

"He is inactive, sir."

Olivine cursed. "We'd better go see what that crazy punk is up to. Come on!"

He led the way down to the second deck and to the inner door of the lock. "Open up, Ship."

"Yes, sir. There will be a brief delay while I close the outer door first, according to regulations, sir."

"Skip the regulations and *open up!*" Olivine bellowed.

The door opened, revealing the young torp Noreast flat on his stomach facing the open outer door. Beside him was a stitch-rivet embedder, or what was left of it. Noreast had stripped and jiggered the tool into a crude machine gun.

And there was a peculiar stench in the air.

"Back off, everybody!" Olivine yelled. *"Put on your fume filters!"*

He was feeling giddy before he got his mask on, but he had been

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closest to the door and had got a stronger whiff than the others. It wasn't an unpleasant giddiness; in fact it was pretty damn nice. But there was work to be done.

"Ship, blow out that stench and close the outer door." When that was done, he and the others removed their masks and went into the lock. "Charlo, take charge of that fool weapon. Take it back to the maintenance shop, try to find the parts the punk removed, and put it together again. Then hide it."

He bent down, grabbed Noreast by the shoulder, and flopped him over on his back. Noreast was obviously unconscious, but his face was more expressive than it had ever been during a state of wakefulness. A continual flux of emotions played across it, ranging from restful content to wild ecstasy.

"The little rat's coked to the gills!" grunted Crown.

"Yeah, but whoever heard of happy-powder that makes you feel like *that*?" breathed Charlo, gazing with awe at Noreast's glowing face.

There was a long pause of wonderment as they stood looking down at the young man's occasionally twitching form. Then Olivine spoke.

"Much as I hate to credit this trigger-mad creep with anything," he said, "I believe he's fingered our grab for us. Folks, we must have landed this ship squarely in the middle of a field of super-pot!"

Holbein mused, "It does seem reasonable to assume he inhaled smoke from the grassfire, and thus entered his obviously pleasant comatose condition."

"Right," said Olivine. "It isn't something normally in the atmosphere, or I would have got a dose of it while I was in the open forecone. I did get a small sniff when the inner door opened just now. If it isn't the fern grass, it's probably some smaller weed hidden in the grass."

"Well, let's be finding out!" urged Charlo, a trifle too eagerly, Olivine thougvt.

"Ease off!" he snapped. "We came here to make a grab, not to get ourselves coked! First, we're going to flop the punk in his sleep-tank and keep a watch over him until he wakes up and tells us what happened. Meanwhile, Miss Lingrad, since you say you know biology, you're going to put on your mask and gather plant specimens outside. Crown, you stand guard over her while she's out."

"I'll guard her, boss," Charlo volunteered.

"I said Crown," snapped Olivine. "I want you to get that stitch-riveter back in working shape. If anymore dinosaurs come banging against the ship, we may need it for hull repair. Get at it, all of you."

With Holbein helping, Olivine lugged Noreast to his quarters and

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laid him out in his sleep-tank. He disconnected the deep-sleep needles, not wanting extraneous modifications of Noreast's drug-induced slumbers, but allowed the nutritive injectors to snuggle into their normal positions around the young man's upper arms as the tank lid closed.

"We'll take turns watching him, if he's under long enough," he said. "You take the first watch, Holbein, and yell if he starts waking."

"I will watch him like the proverbial hawk," the con man assured him.

After pecking into the maintenance shop to make sure Charlo was on the job, Olivine went to the control deck to keep an eye on what was going on outside. Crown and Icy were in view on the screen, apparently having just come out of the ship. The girl was carrying a druoplas sack for specimens and a pair of snippers. Crown was brandishing a length of iron pipe and looking around menacingly for some life form to test his weapon on.

It was, Olivine mused silently, something of a blessing that the *Glumers Jo* had carried no stock of firearms, with such trigger-happy characters as Noreast and Crown in the company. Not that he relished being stuck with a non-fighting ship with the Patrol on the lookout for him, but this untrustworthy crew was a far more immediate threat.

He frowned thoughtfully as something nagged at his memory. "Ship, you're sure there are no guns aboard?" he demanded.

"Yes, sir."

"But I seem to recall that a small-arms locker is part of standard equipment for a port-service vessel," he persisted.

"That is correct, sir," the ship responded.

"Then where's yours?"

"Removed several days before you came aboard, sir, for purposes of periodic shop-check and testing of the guns."

Olivine grimaced in dismay. A coincidence? Perhaps. But Icy's accusations of a put-up job, plus his own suppressed suspicions along similar lines, hammered in his mind.

Had that Patrol computer rigged this whole escape for some purpose of the Patrol's? Had he been *meant* to capture the *Glumers Jo*, carefully disarmed in preparation for his occupancy?

The whole affair smelled.

Angrily, he thrust the thought aside. There was no point in turning as paranoid as a common criminal! Guns *were* removed from ships for periodic checks, so it was silly to entertain dark suspicions over a purely routine matter!

"Don't you have any defensive weaponry at all?" he asked. "Something we can use if another dinosaur starts nudging us?"

"I am equipped with tangline, sir, for use in riot control. However,

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for tangline to be effective against a life form the size of the saurian, I must deploy it from an airborne position."

Olivine nodded slowly. "And we're going to be grounded here for at least four days," he muttered, thinking of those slowly cooling closrem bearings.

"Yes, sir."

Olivine got out of his chair and prowled about the deck, in search of some occupation. Now and then he glanced at the screen, but nothing untoward seemed to be going on outside. Icy had stuffed her sack half full of fern grass and was now searching for, and occasionally finding, other species of plants to snip. Crown had climbed the hill over which the dinosaur had departed, taken a look around, and returned.

"Give me quarters, Ship," Olivine ordered after a couple of hours had passed. "Holbein, is Noreast still sleeping?"

"Like an outrageously happy baby," Holbein replied.

"O.K."

He took another glance at the screen and saw Icy and Crown scooting hurriedly for the lock.

"What's happening outside, Ship?' 'he asked.

"I believe a saurian is approaching, sir."

Olivine scanned the portion of the horizon visible on the screen, and indeed a dinosaur was lumberilng into view across the hill.

"Hey, Starfuzz!" came Icy's voice over the intercom. "Your fellow reptile is back!"

As the giant animal plodded closer, Olivine saw that it was, as Icy said, the same one that had been there earlier. It showed the sooty markings of the flamethrower. But now it looked fatter, its belly being hugely distended either from gross overfeeding or perhaps from some internal reaction to the scorching the creature had received.

"Are both of you aboard?"

"Yeah."

"O.K., close the lock. Ship, prepare to use the flamethrower again. I'll go up to light it."

He grabbed the welding torch and scrambled once more into the forecone which the ship had already opened. He started his torch and stood by the nozzle, staring out at the blackened form of the colossal reptile.

The animal had halted less than a hundred feet away facing the ship, and was making strange blowing sounds through its mouth, huffing air in and out in such volume that Olivine could feel the breeze, and caught a strong smell of latrine-odored breath.

Then it began grinding its teeth together in short raspy strokes, making a noise that set Olivine's own teeth on edge. Out of its mouth came a wisp of smoke, then

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a trickle of flame, and finally a roaring gush of fire!

"Close the cone, Ship!" Olivine bellowed, jumping for the hatch opening but getting another singeing before he escaped the saurian's line of fire. He dashed to the control deck, still brushing his hair for lingering sparks. "Somebody find me some burn ointment!" he groaned, staring at the screen through watery eyes.

Icy and Crown came in, followed a moment later by Holbein who handed him a tube of Kwikeeze. They stood watching in awe as the saurian plodded slowly around the ship while bathing it from stem to stern with his flaming jet of . . .

"Stomach gas!" said Olivine as he applied the Kwikeeze to his tender neck, face and left arm.

"Without question," agreed Holbein. "Note that the creature's belly is rapidly returning to normal size. Perhaps we see here the source of old Earth's legends of fire-breathing dragons—pictures of such creatures as this having lingered in man's store of genetic memories ever since the Jurassic."

"But how," Icy complained, "could an animal *light* its breath? It doesn't have any fire?"

"Not its breath, its burp," Olivine corrected. "It blew its mouth dry, and then struck a spark by grinding its teeth together. I saw the whole process."

"Oh. But what purpose . . ."

"Grooming activity, my dear girl," Holbein told her. "Wild creatures often groom one another, such actions as picking fleas out of one another's fur. We unwittingly groomed our large friend, after which he stuffed himself with food to generate digestive gas in sufficient quantity to return the favor. Such cooperative survival acts can be carried out with only the most primitive and rudimentary reasoning powers."

"Well, he's finished and leaving," grunted Olivine, "and he's started another grassfire around the ship, so outside activities will be suspended for a while. Crown, take over the watch by Noreast's tank. The rest of us will test the specimens Icy brought in."

In a hastily rigged lab on the fourth deck, Olivine, Holbein, and Icy tested the plants, with the con man serving as a very willing guinea pig. He came out from under the plastic hood after breathing smoke from burning fern grass.

"That merely makes me wish to cough," he wheezed. "No euphoric effects, I regret to say."

"O.K., we'll try the other specimens."

The results were consistently and disappointingly negative.

"This is ridiculous," Olivine protested. "The weed has to be here!"

"Maybe it takes a combination," Icy hazarded, "or maybe it's not a weed at all but a soil bacterium."

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"We'll find out," Olivine vowed. "You two keep at it while I go get some soil samples."

He went down to the lock, which was standing open. He hurried to the outer door and saw Charlo kneeling in the grass a hundred feet from the ship, using a welding torch to fire the grass and then bending forward to sniff the result. He kept silent as the man moved to a new spot and repeated the routine. Charlo was using the torch long enough, he saw, to test ground and roots as well as plant tops.

"Any luck, Charlo?" he called out.

The ex-mechanic started up with a guilty expression, then shrugged. "No luck," he said.

Frowning, Olivine turned and went to look in on Noreast and Crown. Noreast was still out, and when Olivine opened the tank lid and shook him by the shoulder, the happy sleeper merely grinned vapidly, drooled, and muttered *"Yeah, baby, yeah."* Olivine cursed and retired to the control deck.

Holbein and Icy came in after a while. Olivine glanced at their expressions, and didn't have to be told the further testing of the plant specimens had been fruitless.

"We'll just have to wait," he growled, "until that punk Noreast comes out of it and tells us what happened."

That was not until three days later. By that time the whole crew, with nothing better to do, was spending most waking hours hanging around the young man's sleep-tank, eyeing his supine form with emotions ranging from annoyance to envy.

Suddenly Noreast snorted, opened his eyes, and sat up, pushing the lid aside and looking alertly about.

"This some kind of meeting?" he asked.

Charlo demanded eagerly, "Was it a good trip, kid?"

Noreast blinked and his eyes grew dreamy as he remembered. "Yeah . . . yeah," he breathed. "Damn good. But it was no *trip,* man, it was *life!*"

"O.K.," snapped Olivine, "we're trying to find out what sent you on it. How long after the grassfire started did you—"

"What grassfire?" Noreast grunted. "I didn't see any grassfire."

"Try to remember," Olivine said with a poor effort at patience. "You were in the ship's lock with that gun you made out of the stitch-riveter, fixing to shoot the dinosaur. The grass around the dinosaur caught fire. Remember?"

"I ain't admitting anything, Starfuzz!" the young man growled. "Anyway, I must've passed out before the grass started burning. I don't remember that. I smelled the muck on that big lizard burning, and that's all I remember."

The crew stared at him.

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Holbein said, "Several of us remarked upon the rather weedy patches on the creature's skin, and surmised these were perhaps parasitic plants taking nourishment from the thick muck or from the creature himself, or from both. The precarious position of such a plant in the natural scheme might well lead to the production of unusual biochemical substances for the purpose of—"

"O.K.," Olivine broke in, "we know where to look. Charlo, let's see how quickly we can get those closrems back in service and this bucket in the air!"

The following day, about seventy kilometers from their original landing site, they bagged their first saurian. It was not difficult, because for once the ship was well equipped for the job at hand. It hovered over the monster, discharged a three-gallon charge of the strip-forming mnemoplasic, tangline, onto the beast, and settled to the ground by the giant, firmly fettered form. The beast blinked stupidly at the ship.

"Crown, will you go out and pick a sample . . ." Olivine began, but his voice was unheeded in the hubbub as the entire crew bounded toward the lock. Noreast's half-incoherent accounts of his "trip" had got to them all, even Icy Lingrad. It was an experience they wanted to share.

Olivine stared at the viewscreen in disgust as they swarmed around the saurian, yanking green growths off the animal and stuffing them into sacks, shirtfronts, or whatever container they happened to find at hand as they left the ship.

"Damn such undependable dregs!" raged Olivine. "Ship, prepare a dozen man-sized discharges of tangline. As long as those idiots keep picking the greenery, let them pick. But when one stops and tries to light a fire or move away from the dinosaur, tie him up! Understood?"

"Yes, sir."

Olivine watched and listened as the harvesting continued. He heard Noreast assure the others that the plant smelled right, and they began picking faster.

Charlo was the first to head for the ship, lugging a half-filled packing carton. He squalled in outraged alarm when the tangline hit him. The others looked up.

"What do you think you're doing, Olivine?" Crown roared.

"I'm keeping the bunch of you unhooked!" Olivine replied coldly, the ship's speaker system carrying his voice outside.

"Crummy starfuzz!" Icy shouted.

"Really, Mr. Olivine," said Holbein, "such heavy-handed tactics as these—"

"Shut up, the bunch of you, and take a close look at Noreast," he replied. "For the past two hours he's had the shakes and been in a

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cold sweat. Needing a fix, punk?"

Noreast giggled loudly and hysterically. "Sure I need a fix, you Proxad creep, and I'm going to *get* it! I got friends to see that I do! We're all against you, Starfuzz!"

Suddenly he made a break for a nearby stand of conifers. The tangline stopped him after his first three steps and he tumbled to the ground screaming. Crown, Holbein and Icy gazed at him in dismay.

"Holbein, Crown, leave your vegetables where you are and bring the punk inside. Let Charlo get a good look at him on the way."

Hesitantly, the two men complied.

"And all of you listen to me," Olivine continued. "We've got exactly three days left to make our grab and beat it before the satellites report us and the Patrol comes

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swarming. The grab we make may be the only one anybody *ever* makes of this planet's super-pot! Getting hooked on the stuff is the worst kind of sucker's game, because once this one load is gone, it'll be cold-turkey time for all takers! You can take a look at the punk and get an idea how much fun that's going to be . . . and keep in mind that he's just *beginning* to feel it!"

He paused and studied their faces on the screen. "Do I make myself clear?" he demanded.

"Your point's well taken," Holbein replied. The others nodded grudgingly.

"Good. Bring the punk in, put him in his tank and give him deep-sleep. That should ease him through the worst of it. Then get back to the harvest!"

Cowed and silent, the others complied.

Before the day was over, the crops from seven saurians had been harvested, and Olivine was positive that only one leaf had been burned. He had fired that one himself and taken a single quick whiff, to make sure they were getting the right weed. They were. It took all his Patrol training to enable him to stop after that one whiff.

After questioning the ship, he had the weed packed away in the midship lockhold, which was equipped with a five-digit combination lock which he could reset to a combination that was not only unknown to the others but to the ship itself.

By nightfall they were all exhausted—Olivine from the strain of trying to keep four people under constant observation and the others from unaccustomed physical exertion. He confronted them sternly as the lockhold door closed on their final pickings of the day.

"O.K., strip to the skin!" he commanded.

"Go to hell, Starfuzz!" Icy exploded.

"Try and make us!" grated Crown threateningly.

"I don't have to make you!" Olivine snapped. "You'll make each other! I've had the ship bypass all filters in the air-control system. That means that if just one of you decides to sample a *little* super-pot in the middle of the night, the fumes will spread all over the ship. Tomorrow morning the entire lot of us will be hooked, including myself. Think it over: nobody to play nursemaid for you, the way we have for the punk. And nobody to keep the Patrol from picking you up. It's your decision, lady and gentlemen!"

After arguing for ten minutes, they stripped. Olivine shook over a pound of weed out of their clothing, finding some on everybody but Icy, then allowed them to dress and go to supper.

The next day went much the

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same. Once in the morning and again in late afternoon Olivine brought Noreast out of deep-sleep long enough to check on his progress. The kid was feeling miserable, but with the help of the sleep-tank's automated facilities he was recovering rapidly from the painful withdrawal experience.

The following morning—the last day they could safely remain on the planet—Noreast was let out of the tank. "Have you learned anything, punk?" Olivine sneered.

The young man nodded weakly.

"O.K. It's time you started pulling your weight. I'm sending you out with the others as soon as the ship finds a dinosaur for us."

The ship found a scattered *herd* of the lumbering saurians. Olivine was pleased. They could move quickly from animal to animal, with little time lost between, and with five picking instead of four they should have the lockhold packed tight by nightfall.

Work went well all morning. Noreast was slow and sullen at first, but gradually brightened as the hours passed. Watching him, Olivine wondered if perhaps the squares were right about the virtues of hard work. Labor was certainly changing Noreast—temporarily at least—from a surly rat into a happy-acting kid.

Shortly after lunch, the happy-acting kid did something very foolish and got away with it. When one saurian was picked clean, he ran to another that had wandered close and was not bound by tangline. The surprised animal twisted its neck to peer down at him as he began jerking weed out of its tremendous forelegs. After studying him solemnly, the beast returned to its feeding. Noreast laughed and yelled at the others, telling them to quit wasting time waiting for the ship to tie up another animal.

Crown and Charlo ran over to join him, and Holbein followed more slowly. Icy hesitated a long time, but finally went over when the saurian allowed Noreast to run up its tail and start harvesting the growth on its back without objection.

Olivine had watched tensely, silently cursing the fool kid. Now he heaved a sigh of relief. The saurians apparently liked to have their weeds picked. Perhaps it was principally to get rid of them that they went in for fire-grooming.

When the animal was picked clean the four men moved on to another, leaving Icy behind to load what they had gathered into the ship. Olivine ordered the ship to lift over to where Icy stood beside the loaded baskets. She gave the screen's scanner eye a meaningful look as the ship touched down.

Puzzled, Olivine left the control deck and went down to the lock. She handed a basket in to him.

"Why the grim look?" he asked.

"They're *chewing* the stuff!" she said.

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"Chewing the stuff?" he echoed.

"I think Noreast must have started as soon as we came out this morning," she related. "Then one by one he got the others started. Holbein was the last. I didn't know about it until a few minutes ago when Charlo tried to put me on it. 'Have a chew and then we'll have some fun!' " she mimicked the man. "I know what kind of fun that slimey artist wants!"

Olivine nodded, frowning. Her aversion to sex, he guessed, was all that had stopped Icy from chewing with the others. "I ought to have guessed the punk was up to something," he said. "He was acting so abnormal for him."

Icy handed in another loaded basket. "The stuff seems to work differently chewed than smoked," she said.

"A lot of drugs do," he replied absently. "Look, Icy. We've got enough of a grab now. As soon as we get this load in the lockhold, I'm going to bundle those idiots in tangline. You'll have to help me lug them aboard and put them in deep-sleep. Then we're hauling out of here for Dusty Roost!"

"Suits me!" she sniffed. "I've had a bellyful of present company!" She walked away to get the last basket, then suddenly yelled, *"They're scattering, Olivine!* They're running in all directions!"

He leaned out the port to get a view of the men's position. Holbein, Crown, Charlo and Noreast had indeed taken leave of the saurian they had been harvesting and were rapidly putting distance between themselves and the ship.

"The jerks!" Icy snorted. "They must've guessed I'd squeal to you!"

"Get on board quick!" urged Olivine. She ran to the lock and he pulled her up and inside. "Take off, Ship, and have the tangline ready!"

"I'm sorry, sir, but regulations forbid lift-off while the lock is open," the ship replied.

Olivine cursed and hurried Icy through the inner door. "Now close the lock and take off!" he bellowed.

"Yes, sir."

By the time they reached the control deck, not a man was in sight on the ground.

"They must be hiding under the saurians," Olivine guessed. "Ship, give me full amp on outside speakers and pickups! *Hey, you guys!"*

"Take an underground jump, Starfuzz!" came Noreast's voice dimly and obscured by the noises being picked up from the saurians.

"Use some sense!" he yelled back. "Holbein! You're no idiot! Show yourself and we'll come down for you!"

After a moment Icy pointed at the screen. "There he is, off to the left."

Olivine ran up the magnification and watched the con man stroll out from under a dinosaur and wave his

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arms. He was wearing a grin that was only slightly sheepish.

"Tangline him, Ship!"

"The rest of you!" Olivine called into the mike. "Come on out! Crown! Charlo! You're not crazy kids! Stop playing games and let's go cash in our grab!"

There was no response from below. Olivine called again and again. Finally he turned to Icy. "I hate to leave any of them here for the Patrol, and especially Charlo. How about . . . uh . . . promising him something if he'll show himself? You won't have to pay off."

The girl snapped a disgusted obscenity at him and whirled away.

"Set down by Holbein, Ship," Olivine ordered.

A few hours later the *Glumers Jo* was in interstellar space, speeding away from the Dothlit System at full thrust. Holbein was in deep-sleep. Olivine and Icy Lingrad had eaten supper together in a strained atmosphere. He guessed she felt less at ease with one man than with five around.

"Will the Patrol find them?" she asked.

"Sure. That's the hell of it. The Patrol will find them, and they'll talk. The Patrol will know we've made the grab. I doubt if we'll be able to get to Dusty Roost with the stuff. We'll probably have to unload it with some out-of-the-way dealer at half what we could get in the Roost."

"O.K., and there's just three of us to split the take instead of six," she replied.

"Yeah, there's that bright point." He grimaced. "I shouldn't have wasted that planet on such a crew. I knew better, but . . . well, damn it, I needed a big grab! For a job like that I should have had a man trained in satellite servicing, who could locate those spy-gadgets and nullify their reports. And maybe just one other guy—somebody who could be counted on to put cold cash ahead of a snout full of fix. Six people were too many in any case—too many possible discipline breakers."

"To hell with discipline," Icy muttered automatically.

"Yeah, that was precisely the trouble with this crew. To hell with discipline."

Icy yawned and stood up. "I'm going to hit the tank and leave you to your lonely regrets, Starfuzz."

He sat musing for a while after she left the room, and finally decided the grab had turned out pretty well after all. First and foremost, he *had* the grab, and the Patrol didn't have *him*. If the planet Dothlit Three wound up with a manned Patrol guard as a result, so what? The galaxy was well supplied with potential grabs, after all. Why mourn the loss of one?

He grinned and went to his sleep-tank. Reasonably content he dozed off . . .

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And roused several hours later to the strong smell of burning super-pot!

"Ship," he mumbled, sitting up groggily, "activate all air-system filters."

He fell back into his tank and was in too thorough a state of pure bliss to hear the ship reply, "Yes, sir."

He woke up feeling fine and stared at the face of the clock-calendar on the under side of the tank lid. He had been out for three days!

He leaped angrily from the tank and strode to Icy's quarters where he barged in without knocking. The girl was in her tank, obviously as out as he had been.

Holbein!

He ran through the ship and finally found the man in the dining area nursing a large cup of black coffee. Holbein looked up at him with pained, sick eyes.

"Ah, Mr. Olivine," he greeted him dully, "care for some coffee? I take it you smoked whereas I chewed, and there you displayed your wisdom, friend. What that super-pot does to a man's stomach is no fit subject for discussion!"

Olivine stared at him. Was the con artist telling the truth or was he . . .

"Ship!" he snapped. "Who was responsible for that burning super-pot that knocked me out?"

"Nobody, sir. Apparently there was a malfunction in the lockhold, sir. A fire broke out inside, burning at least a portion of the vegetable matter. The fumes spread through three decks before you ordered the by-passed filters into operation."

Olivine scampered up the stairs to the lockhold. He and Icy had been only a deck away from the lockhold, he realized, while Holbein had been in a tank down on the second deck, which accounted for Holbein not getting the smoke on top of his chew. The filters had gone up in time to spare him that double dose.

Fumbling in his haste Olivine worked the lockhold combination, jerked the door open, and looked down blankly at the thin bed of gray ash that covered the deck inside.

Not a leaf of super-pot remained.

After a moment he strode to the nearest ventilator access panel, yanked it off the wall, and pulled out a filter that was practically dripping black tar.

"All the filters will require an early change, sir," reported the ship.

"Shut up," he growled. He lit the welding torch, pointed the flame at the tarry mess, and sniffed the resulting smoke.

It smelled like tar, and that was all. It wasn't super-pot anymore.

But *how?* he kept asking himself. What could have caused a fire in the lockhold? And particularly a

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fire that would reduce a whole roomful of wet green leaves to a bed of dry ash? That would take heat and plenty of it!

He returned to the lockhold and began searching for the answer. Two hours later he found it.

It *could* have been an accidental malfunction, he assured himself without really believing it. Certainly short-circuits in electrical wiring occurred, particularly in portions of ships that saw varied usage, and the frequent tearing out and putting in of wiring for special purposes. A part of an old circuit would be forgotten and left in place when a new one was installed. Then someone would come along and stuff the room tight with a mass of greenery that would slowly press two exposed wire-ends to within sparking distance.

Which would do very little damage to the soggy greenery, except for one thing. The electrical spark was near a fire-control sensor, and had warmed it enough to turn on the extinguisher spray in the lockhold.

And the extinguisher spray was, of course, interconnected with the ship's exterior fire-fighting system, into which Olivine had had Charlo pipe fuel-cell juice in order to make a flamethrower out of the forecone nozzle! So the sprayers had sprayed a volatile liquid over the super-pot, the electric spark had supplied the ignition, and ashes were the result.

Olivine slumped down on the deck, pressing his forehead against his knees, hugging his legs convulsively, and rocking back and forth.

Damn it, grown men don't cry! he warned himself angrily.

But the warning didn't help. That stinking CIT computer! It had gimmicked him every step of the way! Even to the point of counting on his determination not to be paranoidally suspicious of such coincidental events as a prisoner transfer at a civilian spaceport, an easily commandeered ship close at hand, a planet within range of the escape scene which he alone would suspect held a big grab, and . . . and no guns on the ship and frozen closrem bearings, and a crew that was plainly beyond discipline . . .

. . . And as the final result, an event that would give the Patrol all the reason it needed to put Dothlit Three under manned guard, which was what the Patrol had been after all along!

Of course, this meant that the Patrol wasn't *about* to put the arm on Olivine and his remaining companions. Their role was to escape with what the Confederation public would be led to believe was a valuable and dangerous grab of one of the wildest narcotics ever found.

Ashes! And cold-turkey time!

Olivine's shoulders shook. ■

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IN OUR HANDS, THE STARS

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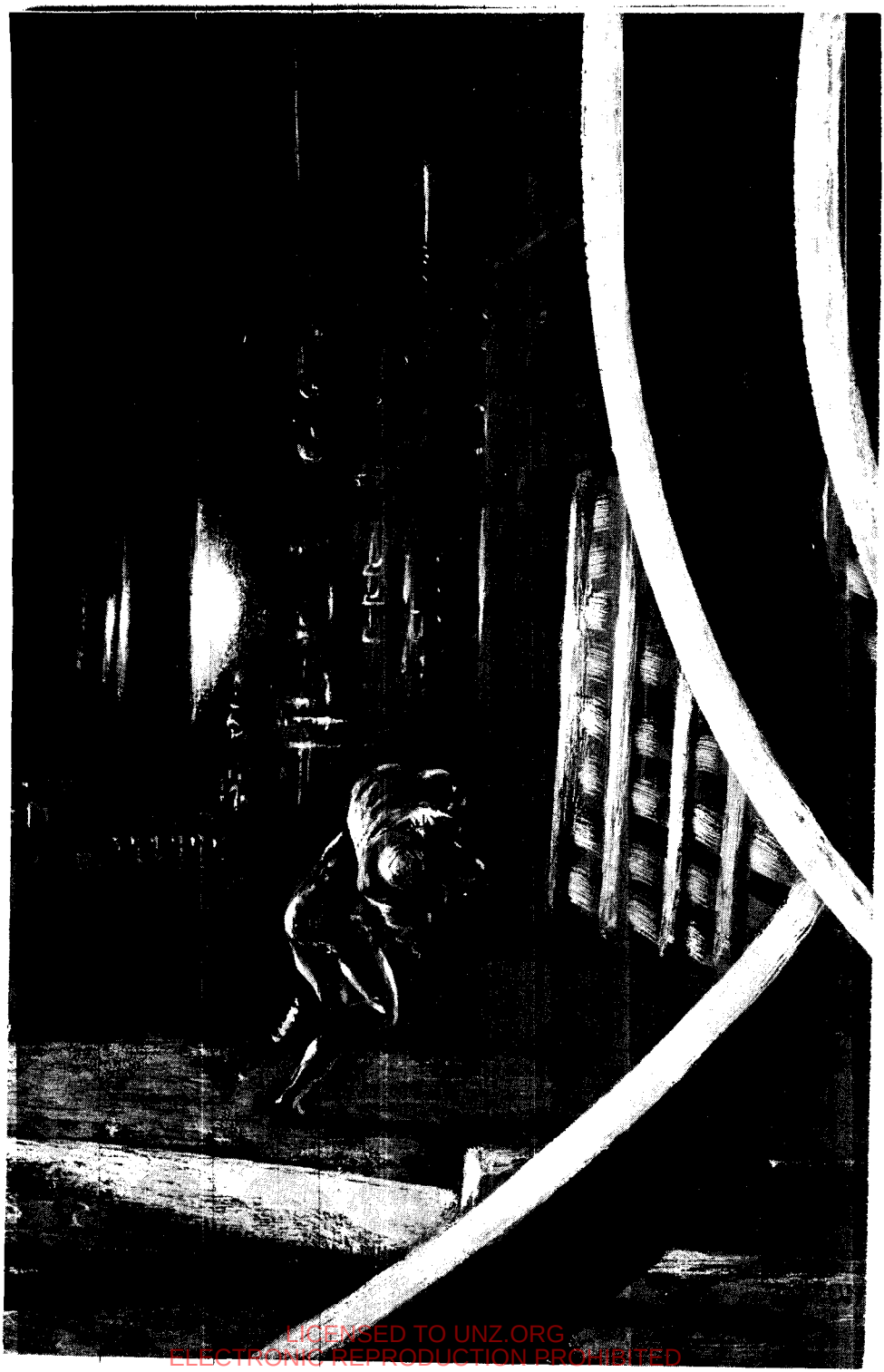

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Second of Three Parts.
The Daleth Effect put "our" hands on the stars—
but the question of just who that "our" was to be was turning
highly lethal, and thoroughly vicious. . . !

HARRY HARRISON

Illustrated by Kelly Freas

PROFESSOR ARNIE KLEIN has an experiment destroyed by an explosion in his laboratory in Israel. He knows that he has discovered something terribly important and he leaves at once for Denmark. His movements are traced by the Israelis who send GENERAL AVRI GEV to demand an explanation. ARNIE reveals that he has made a discovery that could easily be used as a weapon of destruction. He has, therefore, brought it to Denmark, where he was born, to be developed in a peaceful manner as a power for peace. GEV does not think much of this unilateral, even traitorous, action—but there is nothing he can do about it.

ARNIE, with his old friend and scientific associate OVE RASMUSSEN, develops his Daleth drive. It is demonstrated secretly and succeeds in lifting an entire icebreaker into the air. This is only the beginning. The real possibilities of the discovery are shown when an experimental submarine is fitted with the drive and the sub rises above the Earth's atmosphere. It is crewed by ARNIE, NILS HANSEN the top SAS pilot, and HENNING WILHELMSEN a submarine commander. The Daleth effect provides a true space drive that can operate continuously, first for acceleration, then deceleration. A spaceship fitted with the drive can go to the Moon in less than four hours, to Mars in less than two days. The impact of this discovery will be enormous.

Although the development of the drive has been kept a tight security secret it is already being investigated by other nations. Even though Denmark is a NATO partner, the United States knows nothing about the Daleth effect. CIA man BOB BAXTER wants to know more. As does LIDIA SHIROCHENKA his opposite

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number at the Soviet Embassy. They both employ HORST SCHMIDT, an experienced spy and double agent.

OVE RASMUSSEN has developed a fusion generator that could be used to power the Daleth drive in space. They are considering this just as there is an announcement that there has been a tragic accident. The three members of the U.S.S.R. lunar expedition, NARTOV, SHAVKUN and ZLOTNIKOVA, are uninjured—but they are trapped on the Moon. They will die there since there are no rescue rockets available anywhere in the world.

But there is the tiny submarine, Blæksprutten, *and the Daleth drive. The Danes do not wish to reveal the existence of the drive yet, but they must in order to save the cosmonauts. It is the humanitarian thing to do. The sub is quickly readied and ARNIE, OVE and NILS take it to the Moon. They arrive just as COLONEL NARTOV is making his farewell speech. The cosmonauts are saved—so the drive will no longer be a secret. What will the world reaction be?*

Part 2

XII

The Minister of Foreign Affairs shuffled through the notes he had made during the conference with the Prime Minister, finally finding the quote he wanted.

"Read back the last sentence, will you please?" he said.

"The Prime Minister does appreciate your exceedingly kind communication, and . . ." His secretary flipped the page in her steno book and waited, pencil poised.

"And has asked me to thank you for the good wishes you expressed. He feels that it was very gracious of you to offer access to all of your advanced technologies in space engineering and rocketry, in addition to the use of your extended network of tracking stations around the globe. However, since we have little or nothing that we could contribute to a rocketry program we feel that it would be unfair of us to enter into any agreements at this time. That's all. The usual salutation and closing. Would you read the whole thing back to me?"

He swung his chair about and looked out of the window while she read. It was dark, the streets empty with the rush hour crowds long gone. Seven o'clock. Too late for dinner. He would have to stop for something before he went home. He nodded his head as the pontifical weight of the words rolled out. All in order, just right. Thanks a lot but no thanks. The Soviets would happily turn over all their billions of rubles of useless rocket hardware in exchange for a peek at the Daleth drive. They weren't getting it. Neither were the Americans, though they seemed to have a stronger case; ties of broth-

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erhood, NATO partners and the sharing of defense secrets among partners. It had been something to watch the American ambassador getting redder and redder as the Prime Minister ticked off on his fingers ten American major defense projects that the Danes knew nothing at all about. The whole world wanted a cut from the cake.

"That's fine," he said when the girl stopped.

"Should I type it up now, sir?"

"Not on your life. First thing in the morning and have it on my desk when I get in. Now get home before your family forgets what you look like."

"Thank you, sir. Good night."

"Good night."

She click-clicked out, her high heels sounding clearly across the outer office in the silence of the empty ministry building. The door slammed. He yawned and stretched, then began to stuff papers into his briefcase. He sealed it and, before he put his coat on, phoned down for his car. The very last thing he checked the file cabinets to see that they were all locked, and gave the lock on his safe an extra spin. That was enough. He set his big black hat squarely on his head, picked up his briefcase and left. It had been a long day and he was tired; he walked with a heavy, measured pace.

The slow footsteps passed by outside the door and Horst Schmidt shifted in the darkness. His knees were stiff and sore, while his legs burned like fire from standing still so long. He was getting a little old for this kind of thing. But it paid so well. In fact he looked forward to being paid exceedingly well for this night's work. He lifted his arm and examined the glowing face of his watch. 7:15. They should all be gone by now. The two sets of footsteps he had heard were the only ones in over half an hour. Perhaps he should wait longer, but his legs wouldn't let him. Over three hours standing in this supply closet. He took up his thick briefcase and felt for the lock, turned it silently and opened the door a crack, blinking at the sudden light. The hall was empty when he looked out.

No security these Danes, no security at all. He closed the door behind him and walked, swiftly and soundlessly on his gum soles, to the office of the Minister of Foreign Affairs. The door was unlocked! They almost invited one in. A name —taken from the phone book— and an imaginary appointment had got him by the concierge at the front door. They had not even asked for a card, though he had one ready, but had settled simply for the false name he gave. Danes! The Minister's private office was unlocked as well—and the door did not even have a bolt on the inside. He opened his briefcase and, feeling in the darkness, took out a

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wooden wedge which he jammed into the crack between the door and the frame.

There were two thin, but completely opaque, plastic sheets in his case, and he draped these over the door and window, sealing them down with sticking tape. Only then did he turn on the powerful torch. The files first, there were sure to be a lot of interesting items in the files. The Daleth drive was, of course, the main interest, but there were plenty of other things he would like to know, information that could be fed to his employers, bit by bit, to assure a steady income. Spreading out his tools he selected a chrome steel jimmy with a razor-sharp end. One twist of this opened the file cabinet as though it were a sardine can. With quick precision he flipped through the folders. A little pile of paper grew on the table next to him.

The safe would be a little more difficult—not very. An antique. He studied it for a few moments, pulling the wrinkles out of his thin gloves as he considered the quickest way to open it.

Because of the soundproofing on it the drill was bulkier than most. But it was geared down and powerful. His bits were diamond tipped. He slapped a handful of clay onto the lock and pushed the bit into it: this would absorb most of the drilling sound. There was just the thinnest whine and vibration when he switched it on. It took only moments to hole through the steel plate.

What came next could be dangerous, but Schmidt was very experienced in taking care of his own skin. With teutonic neatness he put all of his tools back into the case, before taking off his gloves and laying them on the top of the safe. Then, with infinite caution, he tugged on the string about his neck and pulled, up out of his shirt collar, the tiny bottle that was suspended from the string.

The rubber cork was jammed in tightly and he had to use his teeth to prize it loose. Gently, ever so gently, he poured the contents of the bottle, drop by drop, into the little dam he had made in the clay, so it could run down inside the mechanism of the lock. When it was half empty he stopped and resealed the bottle, then carried it to the far end of the room. He used his handkerchief to wipe the glass free of all fingerprints, then rested the bottle on the wadded up handkerchief on the floor, tucked neatly into the corner on the floor. The handkerchief had been purchased earlier in the day from an automatic machine.

He sighed, relaxing a bit, when he stood up. He had made it himself, so he knew that it was good nitroglycerine. But it was unreliable stuff at best, and not nice to be around. He put his gloves back on.

There was a rug on the office floor, but it was tacked down and

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would be too much trouble to try and lift. However the shelves were filled with books, thick tomes, annual reports, weighty important things. Just what he needed. With silent haste he stripped the shelves, piling the books in a pyramid against the door and sides of the safe. He had left an opening in front of the lock. The very last thing, he slid the tiny metal tube of a detonator into the hole and unrolled the wire across the room. Then he sealed the open space with the thickest of the books.

"Langsam . . . langsam . . ." he muttered and crouched behind the desk. The building was silent. There was a small outlet that he had built into the case of the flashlight. The two-pronged plug on the end of the wire fitted neatly into it. Schmidt bent lower and jammed in the plug.

The explosion was a muffled blow that shook the floor. The pile of books began to topple and he ran to catch them. He stopped most of them, but "Annual Fisheries Report 1948-1949" landed with a resounding thud. Smoke curled up and the lock mechanism was a twisted ruin. With careful speed he began moving the books so the safe door could be opened—then froze as heavy footsteps sounded in the outer office. They came closer, right up to the door, and the handle turned.

"Who is in there? Why is this door locked?"

Schmidt put down the books he was holding and turned off the flashlight, then moved to the door. The tape pulled away soundlessly and the plastic sheet rustled as it fell to the floor. He waited until the knob turned again—then reached out and pulled the locking wedge free.

The door burst open with dramatic suddenness and the large form of the night watchman stumbled through, gun in hand. Before he could bring it up there were two coughing reports and he kept on going, forward, down to sprawl full length on the floor.

Schmidt put the muzzle of the silenced revolver against the back of the man's coat, over his heart, and pulled the trigger a third time. The figure jerked convulsively and was still.

After checking the outer office and hall to make sure the watchman had been alone, Schmidt closed the doors and went back to work. He hummed happily as the safe door swung open and he searched through it, ignoring completely the dead man on the floor beside him.

XIII

"Look at that!" Nils said. "Just look at it." He had the early edition of *Berlingske Tidende* propped up against the coffee pot while he sawed away angrily at his breakfast bacon. "I'm just not used to

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seeing headlines like that in a Danish paper. Shocking. Night watchman killed . . . Foreign Minister's office burglarized . . . documents missing. It's like reading the American papers."

"I don't see why you mention the States," Martha said. "These things happened right here, not in America. There's no connection." She took the pot to pour herself some coffee and his newspaper fell down.

"I would appreciate it if you would keep my paper out of the preserves, it makes it hard to read." He picked it up and brushed at the red smears with his napkin. "There is a connection, and you know it. The U.S. papers are always filled with murders, rapes and beatings because that sort of thing always happens there. What was the figure? There are more murders in the city of Dallas in one year than all of England, Ireland, Scotland and Wales combined. And I'll bet you could throw in Denmark, too."

"If you hate Americans so much —why did you ever marry me?" Martha asked, biting into her toast.

He opened his mouth to answer, found that there was absolutely nothing he could say to this fine bit of female logic, so he growled instead and opened to the soccer scores. Martha nodded as if this was just the kind of answer that she expected.

"Shouldn't we get going?" she asked.

Nils glanced up at the clock over the kitchen door. "A few minutes more. We don't want to get there before the post office opens at nine." He put the paper down and reached for his coffee. He was wearing a dark-brown suit instead of his uniform.

"Won't you be flying any more?" Martha asked.

"I don't know. I would like to, but Skou keeps talking about security. I suppose we had all better start listening a little closer to Skou. You better get your coat now, I'll wait for you in the car."

A door led from the utility room into the garage, which made this bit of deception easier. Skou had agreed that the chances were slim that Nils's home was under surveillance, but one could never be sure. The way Skou talked he made it seem as though every flight into Denmark had more secret agents than tourists aboard. He might be right at that; there wasn't a country in the world that didn't want the Daleth drive. He opened the back door of the big Jaguar and slid in. His knees crunched up, and he realized that he had never sat in the back seat before. Martha came in, looking chic and attractive in the brown suede coat, a bright silk band on her hair, and a lot younger than her twenty-six years. He rolled the window down.

"Child-bride," he called out.

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"You never kissed me good-bye."

"I'd cover you with lipstick." She blew him a kiss. "Now close the window and hunker down before I open the garage door."

"Hunker down," he grunted, forcing his massive frame down on the floor. "American. You learn new words every day. Can you hunker up, too?"

"Be quiet," she said, getting into the car. "The street looks empty."

They pulled out and all he could see were the tree tops along Strandvejen while she closed the garage door. When they started up there was just sky and an occasional cloud.

"Very dull back here."

"We'll be there soon. The train is at 9:12, is that right?"

"On the button. Don't get there too early because I don't feel like standing around the platform."

"I'll go slow through the forest. Will you be home for dinner?"

"No way to say. I'll call you as soon as I know."

"Not before noon. I'll do some shopping while I'm in Birkerød. There's that new little dress shop."

"There're some new little bills." He sighed dramatically and unsuccessfully tried to shift position.

It was nine minutes past nine when she pulled into the parking space next to the railroad station, just across the street from the post office.

"Anyone around?" he asked.

"Somebody going into the post office. And a man locking up his bike. He's going into the station, now—no one is looking this way."

Nils pushed up gratefully and dropped into the seat.

"A big relief."

"You will be all right, won't you?" she asked, turning about to face him. She had that little worried pucker between her eyes that she used to have when they were first married, before the routine of his flying pushed the concern below the surface.

"I'll be just fine," he assured her, reaching out and rubbing the spot on her forehead with his finger. She smiled, not very successfully.

"I never thought that I would wish you were back at flying those planes all over the world. But I do."

"Don't worry. Little Nils can take care of himself. And watchdog Skou will be with me."

He watched the graceful swing of her figure as she crossed the road—then looked at his watch. One more minute. The street was empty now. He climbed out of the car and went to buy a ticket. When he stepped out on the wooden platform the big red diesel was just rounding the bend on the outskirts of town, moaning deeply. There were a few other people waiting for the train from Copenhagen, none of them looking at him. When the coaches squealed to a stop he boarded the first one, just behind

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the engine. Ove Rasmussen looked up from his newspaper and waved. They shook hands and Nils sat down in the seat next to him.

"I thought Arnie would be with you," Nils said.

"He's going up with Skou in some other complicated and secret manner."

"It's stopped being a game, hasn't it?"

"You're right about that. I wonder if they'll be able to find the swine who did it?"

"Highly unlikely, Skou told me. Very professional, no clues of any kind. Did them no good either. There was nothing about the Daleth drive in the office."

They were silent after that, all the way to Hillerød where they had to change trains. The Helsingør train was ready to leave, a spur line, one track, and just three cars. It rattled off through the beech and birch forests, skirting the backyards of red-roofed white houses where laundry blew in the fresh wind from the Sound. The woods changed to fields and, at Snekkersten, they saw the ocean for the first time, the leaden waters of the Oresund with the green of Sweden on the far side. This was the last stop before Elsinore and they climbed down to find Skou waiting for them. No one else got off the train at the tiny fishing village. Skou walked away without a word and they followed him.

The old houses had high hedges and the street was empty. Around the first corner a Thames panel truck was waiting, KØBENHAVNS ELEKTRISKE ARTIKLER painted on the sides, along with some enthusiastic lightning bolts and a fiercely glowing light bulb. He opened the back for them and they climbed in, making themselves as comfortable as they could on the rolls of heavy wire inside. Skou got into the driver's seat, changed his soft hat for a workman's peaked cap, and drove off.

Skou took the back roads into Helsingør, then skirted the harbor to the *Helsingør Skibsværft*. The guard at the gate waved him through and he drove into the shipyard. There were the skeletons of two ships on the ways. Riveting machines hammered and there was the sudden bite of actinic light as the welders bent to their work. The truck went around to the rear of the offices, out of sight of the rest of the yard.

"We have arrived," Skou announced, throwing wide the back door.

They climbed down and followed Skou into the building and up a flight of stairs. A uniformed policeman saluted them as they came up and opened the door for them. There was the smell of fresh-brewed coffee inside, mixed with rich cigar smoke. Two men were seated with their backs to the door, looking out of the large window

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that faced onto the shipyard. They stood and turned around when the others entered, Arnie Klein and a tall, middle-aged man dressed in a rusty black suit and vest, with an old-fashioned gold watch chain across the front. Arnie made the introductions.

"This is Herr Leif Holm, the shipyard manager."

Coffee was produced, which they accepted, and thick, long Jutland cigars, which they refused, although Holm lit one himself and produced an immense cloud of blue smoke that hung below the ceiling.

"There you see it, gentlemen," Holm said, aiming the cigar, like some deadly weapon, out of the window. "On the central ways. Denmark's hope and future."

A rain squall swept across the harbor, first clouding the battlements of Kronborg Slot, Hamlet's castle, then the squat shape of the Swedish Hälsingborg ferry. It threw a misty curtain over the red ribs and plates of the ships under construction before vanishing inland. Watery sunlight took its place. They followed Holm's directions, looking at the squat, almost ugly ship that was nearing completion. It was oddly shaped, like an inner tube that had been stretched into an oblong. Bow, stern and sides were fat and rounded, the superstructure, now being assembled on the deck in prefabricated units, was low and streamlined.

"That's the new hovercraft, isn't it?" Nils asked. *"Vikingepuden.* Being built for the Esbjerg to London run. Supposed to be the biggest in the world." He wondered, to himself, what the craft had to do with Denmark's hope and future.

"You are correct," Holm said. "Plenty of articles in the papers, publicity, bigger than the British Channel ferries. What they do not mention is that we have been working on her around the clock and that some major changes have been incorporated in her design. And when she is launched she will be christened *Galathea,* and will sail uncharted seas just like her namesake. If she does not plumb the deepest of the ocean deeps, perhaps she will have a better head for heights." He laid his finger alongside his nose and winked broadly.

"You don't mean . . . ?"

"I do indeed. The Moon, the planets, the stars—who knows? I understand that the professors here have been preparing her motive power, while we of the shipbuilding industry have not been idle. Major changes have been made in her plans. Internal bracing, hull, airtight hatches, air locks, I will not bore you with the details. Suffice to say that in a few short weeks the first true spaceship will be launched. *Galathea."*

They looked at her now with a new and eager interest. The

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rounded hull, impossible in any normal ocean vessel, was the ideal shape for a pressure hull. The lack of clearly marked bow and stern of no importance in space. This rusty, ugly torus was the shape of the future.

"There is another bit of information that you gentlemen should know. All of the operations of the program have been transferred to a new ministry, which will be made public after *Galathea* is launched. The Ministry of Space. I have the honor of being the acting Minister, for the time being. It is, therefore, my pleasurable duty to ask Captain Hansen if he will request a transfer from the Air Force to the Space Force, with equivalent rank, of course, and no loss in benefits or seniority. If he does, his first assignment will be as commanding officer of this magnificent vessel. What do you say, Captain?"

"Of course," Nils said, "Of course!" without an instant's hesitation. He did not take his eyes off the ship even when he accepted their congratulations.

Martha had not been exactly truthful with Nils when she had left him off at the station in Birkerød. She was not going shopping for dresses today but, instead, was keeping an appointment in Copenhagen. It was a small white lie, not telling him about this, one of the very few she had ever told him since they had been married. Seven years, it must be some sort of record. And the foolish part was that there was no reason why she shouldn't tell Nils. It wasn't very important at all.

Guilt, that's all she thought, stopping for the light, then turning south on Kongevej. *Just my own irrational feelings of guilt.* Clouds were banking up ahead and the first drops of rain splattered on the windshield. Where would the modern world be without Freud to supply a reason for everything?

She had been majoring in psychology at Columbia when she had met Nils for the first time. Visiting her parents here in Copenhagen where her father had been stationed—Dr. Charles W. Greene, epidemiologist, big man with the World Health Organization—she had a wonderful summer vacation. Parties and friends. And Nils Hansen.

Big as a mountain and handsome as Apollo in his SAS uniform. An almost elemental force. Laughing and fun; she had been in bed with him almost before she knew he had been making a pass. There was no time to think or even realize what had happened. The funny part was, in a way, that they had been married afterwards. His proposal had come as a real surprise. She liked him well enough, he was practically the first man she had ever been to bed with, because other college students hardly counted.

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At first it had been a little strange, even thinking about marrying someone other than an American, another country and another language. But in so many ways Denmark seemed like the States and her parents were there, Nils and all her friends spoke English. And it had been fun, sort of instant jet set, and they had been married.

She had never been completely sure why he had picked her. He could have had any girl that he wanted to crook his finger at—he still had to beat them off at parties. And he had chosen her. Romantic love she told herself, whenever she was feeling upswing. But when the rain set in for weeks at a time and she was alone she had to go see friends, or buy a hat or something, to get away from the depression. Then she would worry that he had married her because it was that time of life when Danish men got married. And she had been handy. And an American wife has some prestige in Denmark.

The truth was probably somewhere in between these—or took in parts of both. As she grew up she had discovered that nothing was ever as simple as you hoped it might be. Now she was a long-married woman, a homemaker and on the pill, a little bored at times, though not unhappy.

Yet she was still an American citizen—and that, perhaps, was where the guilt came in. If she loved Nils, as she was sure she did, why had she never taken the step of becoming a Danish citizen? In all truth she never thought much about it, and whenever her thoughts came near the subject she slithered them away in another direction. It would be easy enough to do.

She was driving mechanically and realized suddenly that the rain had got heavier, that it was covering the glass, and she slowed and turned on the wipers.

Why didn't she do it? Was this a thin lifeline she held to, to her family, her earlier life? A fractional noncommitment that meant she still had some doubt about their marriage? Nonsense! Nils never mentioned it, she couldn't recall their ever even talking about it. Yet still the guilt. She kept her passport up to date, which made her a foreign resident of Denmark, and once a year a smiling detective at the Criminal Police division stamped an extension into it. Perhaps it was the Criminal Police bit that bothered her? No, that was just a government office, it could have been any office and she knew that she would feel the same. Now the American Embassy had some question about a detail in her passport and she was going there. And she had not told Nils about it.

With the morning rush hour over the traffic was light, and she was at the Embassy before ten. There wasn't a parking place in

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sight and she finally ended up over two blocks away. The rain had settled down to a steady Danish drizzle, the kind that could last for days. She slipped on her plastic boots, she always kept a pair in the car, and unfolded the umbrella. Too short a distance for a cab ride; too long to walk. Taking a deep breath she opened the door. The rain drummed on the transparent fabric of the umbrella.

The lobby, as always, was deserted, and the receptionist behind the big desk looked on with the cold detachment of all receptionists while Martha juggled her closed, dripping umbrella and searched through her purse for the piece of paper.

"I have an appointment," she said, unfolding it and shaking out the crumbs of tobacco. "With a Mr. Baxter. It's for ten o'clock."

"Through those doors there, turn left, room number 117. It's down at the end of the hall."

"Thank you."

She tried to shake all of the water off on the mats, but still trailed a spatter of drops across the marble floor. The door to number 117 was wide open and a gangling man with thick, dark-rimmed glasses was bent over the desk, studying a sheet of paper with fierce concentration.

"Mr. Baxter?"

"Yes, please come in. Let me hang up those wet things for you. Quite a day out. I sometimes think that this whole country is ready to float out to sea." He stood the umbrella in his wastebasket and hung up her coat, then closed the door. "Then you are . . . ?"

"Martha Hansen."

"Of course, I was expecting you. Won't you sit here please?"

"It was about my passport," she said, sitting and opening her purse on her lap.

"If I could see it."

She handed it over and watched while he turned the pages, frowning as he attempted to read some of the smudged visas and customs stamps. He made a few notes on a yellow legal pad.

"You sure seem to like traveling, Mrs. Hansen."

"It's my husband, he's an airline pilot. The tickets are practically free so we do get around a lot."

"You're a lucky woman." He closed the passport and looked at her, his eyebrows raised above the glasses' frame. "Say, isn't your husband Nils Hansen—the Danish pilot? The one we have been reading about."

"Yes. Is there anything wrong with the passport?"

"No, not at all. You really are lucky married to a man like that. Say, is that pendant you're wearing from the Moon? The one that was in all the papers?"

"Yes, would you like to see it?" She slipped the chain over her head and handed it to him. It was an

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ordinary bit of volcanic rock, chipped and untrimmed, that was held in a silver cage. A stone from another world.

"I heard that you had been offered a five-figure sum for it. You had better take good care." He handed it back. "I wanted your passport just to check. There has been some difficulty with another passport with almost the same number as yours. We have to be sure, you know. Hope you don't mind?"

"No, of course not."

"Sorry to bother you. But you know how it is. This kind of thing would never happen at home. But an American, living abroad, always a lot of paperwork." He tapped the passport on his blotter but made no attempt to return it.

"My home is here," she said, defensively.

"Of course. Figure of speech. After all, your husband is Danish. Even though you are still an American citizen."

He smiled at her, then looked out of the window at the rain. She clasped her hands tightly on top of her purse and did not answer. He turned back and she realized that the smile was empty, not sympathetic or friendly. Not anything. A prop just like the glasses that gave him that owlish intellectual look.

"You must be a loyal American citizen," he said, "because you have never considered giving up your citizenship even though you are married—seven years isn't it?—to a citizen of a foreign country. That's true, isn't it?"

"I . . . I don't think much about these things," she said in a very small voice, wondering as she spoke. Why didn't she tell him to mind his own business? Take her passport and get out of here? Perhaps because he spoke aloud what she had always known and never mentioned to anyone.

"There's nothing to be ashamed of. Loyalty to one's country may be old-fashioned, but there is still something fine about it. There is nothing at all wrong in loving your husband, as I'm sure you do, and being married to him—yet still keeping your God-given American citizenship. It's something they can't take away from you, so don't ever give it up." He made his points, sternly, tapping the passport on the desk as he did so.

She could think of nothing to answer, so remained silent. He nodded, as though her silence were some kind of consent.

"I see by the papers that your husband actually flew that Daleth drive ship to the Moon. He must be a brave man."

She had to at least nod agreement to that.

"The world is looking to Denmark now, for leadership in the space race. It's sort of funny that this little country should be ahead of the United States. After all the

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billions that we have spent and after all the brave men who have died. A lot of Americans don't think that it's fair. After all it was America that freed this country from the Germans, and it's American money and men and equipment that keeps NATO strong and defends this country against the Russians. Maybe they have a point. The space race is a big thing and little Denmark can't go it alone, don't you agree?"

"I don't know, really. I suppose they can . . ."

"Can they?" The smile was gone. "The Daleth drive is more than a space drive. It is a power in the world. A power that Russia could reach out a few miles and grab, just like that. You wouldn't like that to happen, would you?"

"Of course not."

"Right. You're an American, a good American. When America has the Daleth drive there will be peace in the world. Now I'll tell you something, and it's confidential so you shouldn't go around mentioning it. The Danes don't see it in the same way. Certain left-wing factions in the government here—after all they *are* Socialists—are keeping the Daleth material from us. And we can imagine why, can't we?"

"No," she said defensively. "Denmark isn't like that, the people in government. They have no particular love for the Russians. There is no need to worry."

"You're a little naïve, like most people, when it comes to International Communism. They are in everywhere. They will get this Daleth drive away from the free world if we don't get it first. You can help us, Martha."

"I can talk to my husband," she said quickly, a cold feeling of dread in her chest. "Not that it would do much good. He makes up his own mind. And I doubt if he can influence anyone . . ." She broke off as Baxter shook his head in a long, slow *no*.

"That is not what I mean. You know all of the people involved. You visit them socially. You have even visited the Atomic Institute . . ."

"How do you know that?"

". . . So you know a good deal more about what is happening than anyone else not formally connected with the project. There are some things I would like to ask you—"

"No," she said, breathlessly, jumping to her feet. "I can't do it—what you are asking. It's not fair to ask me. Give me my passport, please, I must go now."

Unsmiling, Baxter dropped the passport into a drawer and closed it. "I'll have to hold this. Just a formality. Check the number against the records. Come back and see me next week. The receptionist will make an appointment." He went to the door ahead of her and put his hand on the knob. "We're in a war, Martha, all over the

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world. And all of us are frontline soldiers. Some are asked to do more than others, but that is the way wars are. You are an American, Martha, never forget that. You can't ever forget your country or where your loyalties lie."

XIV

There was something final about cleaning out his locker that depressed Nils. Number 121 in Kastrup airport, it had always been his, no one else's. When they had enlarged this section and built the new lockers he, as Senior Danish Pilot, had first pick. Now he was emptying it. No one had asked him to, but when he had stopped off to pick up the boiler suits he had stowed here, he had realized that he no longer had any right to the locker. In all fairness he should let someone else use it. As quickly as possible he stuffed all the accumulated odds and ends of the years into the flight bag and zipped it shut. The hell with it. He slammed the door shut and stamped out.

In the hallway he suddenly realized that someone was calling his name and he looked about.

"Inger!"

"None other, you big ape. You have been flying too much without me. Isn't it time you hired a good hostess for your Moon trips?"

She strode towards him, long-legged, willowy. A good hostess indeed, a walking advertisement for SAS. Her skirt was short, her jacket round and tight-fitting, her little cap perched at a jaunty angle on her ash-blond hair. She was the tired traveler's dream of a hostess, bigger than life-size, almost as tall as Nils, a vision from a Swedish film. And, almost incidentally, the best and most experienced hostess the airline had. She took his hand in both of hers, standing very close.

"It's not true, is it?" she asked. "That you're through with flying?"

"I'm through with SAS, at least for now. Other things."

"I know, big hush-hush stuff. This Daleth drive. The papers are full of it. But I can't believe that we won't ever fly together again!"

As she said it she leaned even closer and he could feel the tall warmth of her against his side. Then she leaned back, knowing better than to show any more feeling in public.

"God, how I wish we could!" he said, and they both laughed aloud at the sudden hoarseness of his voice.

"The next time you are out of the country let me know," she looked at her watch and dropped his hand. "I have to run. A flight out in an hour."

She waved and was gone, and he went the other way. Walking with the memory of her. How many countries had it been? Sixteen, something like that. The very first time she had flown on his crew they had ended up in bed to-

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gether by mutual and almost automatic decision. It had been New York City in the summer, an exhaust-fumed and sooty inferno just on the other side of the window. But the blinds on the hotel room window had been closed and the air conditioner hummed coolly. There had been no guilt, just a pleasurable acceptance without past or future. He scarcely thought about her when she wasn't present, and neither was jealous of the other. But when they did meet they had a single thought.

It was after a particularly enjoyable night in Karachi that they had first started to figure out how many cities they had made love in. They had had a not too serious argument about just how many cities it really had been. After this they began to keep track. Nils then used his seniority to bid for different runs so they could be together, adding new cities to the lengthening list. But never Copenhagen, or even Scandinavia, never at home. There was an entire world out there that they shared. This was his home and it was something different. It was an unspoken rule that they knew about but never discussed. He pushed open the door to the main terminal and growled, deep in his throat.

A girl's voice on the public address system announced departing flights in a dozen languages. Danish and English for every flight, then the language of the country of destination. French for the Paris flight, Greek for the Athens plane. Even Japanese for the Air Japan Polar flight to Tokyo. Nils worked through the crowds to the nearest TV display of arrivals and departures. There was a shuttle flight leaving soon for Malmö, just across the Sound in Sweden, that would do fine. Skou was always finding new ways to elude any possible attempt to follow them, and this was his latest device. A good one too, Nils had to admit.

He waited in the main hall until just two minutes before departure time. Then he went through the administrative part of the building, where passengers were not allowed. This should have shaken any possible tails. A few people greeted him, and then he was out on the tarmac just as the final passengers were boarding the Malmö flight. He was the last one in and they closed the door behind him. The hostess knew him—he didn't even have to show her his pass—and he went up and sat on the navigator's chair and talked shop with the pilots during the brief hop. When they landed the hostess let him out first and he went directly to the parking lot. Skou was there, behind the wheel of a new Humber, reading a sports newspaper.

"What happened to that *gamle raslekasse* you always drive?" Nils asked, sliding in next to him.

"Old rattling tin can indeed! It

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has thousands of kilometers left in it. It happens to be in the garage for a little work . . ."

"Jacking up the steering wheel to build a new car underneath!"

Skou snorted through his nostrils and started the engine, easing out of the lot and heading north.

Once clear of the city, the coast road wound up and down between the villages, revealing quick glimpses of the Sound, on their left, seen through the trees. Skou concentrated on his driving and Nils had little to say. He was thinking about Inger, erotic memories, one after another, something new for him. He normally lived the moments of existence as they came, planning only as far ahead as was necessary, forgetting the past as something long gone and unalterable. He missed flying, that was for certain, realizing now that this had been the biggest element of his life around which everything else turned. Yet he had not flown an airplane—since when?—before the Moon flight. It seemed that he had been buried in offices and that filthy shipyard for years. The short flight from Kastrup had only teased him. A passenger.

"Here," he called out suddenly. "Let me drive a bit, Skou. You can't have all the fun."

"This is a *government* car!"

"And I'm a government slave. Let's go. I'll report you to your superiors for getting drunk on the job if you don't let me."

"I had one beer with lunch—and a flat Swedish beer at that. I ought to report you for blackmail." But Skou pulled up anyway and they changed seats. He said nothing when Nils put his foot flat on the floor and screamed the engine up through the gears.

There was hardly any traffic on the road and the visibility was good, with the setting sun trying to get through the clouds. The Humber cornered like a sports car and Nils was an excellent driver, going fast but not taking chances. Machines were something he knew how to cope with.

It was almost dark when they reached Hälsingborg and bumped over the railroad tracks to the ferry terminal. They began a new lane and were the first car aboard the next ferry, stopping right behind the folding gate at the bow of the ship. Skou got on line to buy a package of tax-free cigarettes during the brief crossing, but Nils stayed in the car. The drive, short as it was, had helped. He watched the lights of the castle and the Helsingør harbor come close and thought about the work that was nearing completion on *Galathea.*

The guard at the shipyard gate recognized Skou and waved them through.

"How is security?" Nils asked.

"Secrecy is the best security. So far the spies have not connected the much-publicized hovercraft with

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the highly-secret Daleth project. So the guards stationed here—and there are enough of them—are not in evidence. You saw one of them, selling hot dogs from that cart across the street."

"The *polsevogn!* Does he get to keep his profits?"

"Certainly not! He's on salary."

They parked in their usual spot behind the buildings, and Nils used the office to change into his boiler suit. The yards were silent, except for the work going on around the *Galathea* which continued on a twenty-four hour basis. Arc lights had been switched on, lighting up the rusted, unfinished hull. This was deliberate subterfuge: the sand-blasting and painting was being put off until the very last moment.

Inside, it was very different. They climbed the ladder and entered through the deck air lock. The lights came on when the outer door was closed. Beyond the inner door stretched a white corridor, linoleum floored, walled with teak paneling. The lighting was indirect and unobtrusive: framed photographs of the lunar landscape were fastened to the walls.

"Pretty luxurious," Nils said. On his last visit the corridor had been red-painted steel.

"Most of it is from the original specifications," Ove Rasmussen said coming in behind them. "All of the interior was designed and contracted for. There had to be some changes, of course, but in most of the cabins and general areas there was very little. They filed away the pictures of castles and thatched houses and put up these Moon shots instead. These are the prints the Soviets sent in gratitude. Come with me, I have a surprise for you."

They went along a carpeted passage lined with cabin doors. Ove pointed to the last one and said, "You first, Nils." There was a brass plate on the door that read *Kaptajn*. Nils pushed it open.

It was large, part office and part living room, with a bedroom opening off of it. The dark blue carpet was flecked with a pattern of tiny stars. Over the desk, which was an ultra-modern palisander and chrome construction, were mounted a bank of instruments and communicators.

"A little different from flying SAS," Ove said, smiling at Nils's wide-eyed appreciation. "Or even the Air Force. And look there, your first command, in true nautical tradition."

Over the couch was a large, color photograph of the little submarine, *Blæksprutten,* sitting on the lunar plain. The distant Earth shown clearly in the background.

"Another gift from the Soviets?" Nils laughed. "It's all tremendous."

"Personal present from Major Shavkun. He took it before they came over, you remember. See, all three of them have signed it."

"A little paint on the outside

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and *Galathea* looks ready to go. Is it? How does the drive department progress?"

"The fusion generator is aboard and has been tested. A lot of small items are still to be taken care of, nothing important, silverware, things like that—and the Daleth drive, of course. It's built and has been bench-tested at the institute, and it will go in last."

"The *very* last thing," Skou said. "We want to put as little temptation in the way of our spies as is possible. We have the university under a heavy military guard so I imagine they are focusing their interest there." He smiled broadly. "All of the hotels are full. They bring in plenty of foreign exchange. It is a new tourist industry."

"And you're in security heaven," Nils said. "No wonder you are driving a new Humber. Where is Arnie Klein?"

"He has been living abroad for the last couple of weeks," Ove said. "Ever since the bench tests were completed on the Daleth unit. He has been working with my fusion generator and, I swear, he has already made at least five patentable improvements."

"Let's get down there. I want to see my engine room." He looked around once more, admiringly, before he closed the door behind them. "All of this takes a bit of getting used to. It is beginning to be a bigger job than I ever realized."

"Relax," Ove told him. "It's a ship now, but it is going to be a big flying machine once you lift off. Sort of a super 747—which I know you have flown. You'll agree that it is a lot easier to teach you to fly a ship than it is to teach a ship's captain to fly anything at all."

"There is that . . . What's wrong?"

Skou had stopped dead, nostrils flared with anger.

"The guard, he should be there in front of the engine room door. Twenty-four hours a day." He began to run heavily, with a bobbing motion, and pushed against the door. It would not open.

"Locked from the inside," Nils said. "Is there another key . . ."

Skou was not wasting time looking for a key. He drew a short, thick-barreled revolver from a holster inside the waistband of his trousers and jammed it against the lock. It boomed once and jumped in his hand. Smoke billowed out and the door opened. Just a few centimeters, something was blocking it. Through the opening they could see the blue-clad legs of the guard on the floor just inside, his body pressing against the door. He slid along, unprotesting, when they pushed harder to get the door open.

"Professor Klein," Skou called, and jumped in over the guard's body. Three rapid shots boomed out and he kept on going, falling to the floor. He had his gun raised

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but did not return the fire. "Stay back," he called to the other two, then climbed to his feet.

Ove hesitated but Nils dived in, rolling over the guard without touching him. He sat up just in time to see a flicker of motion as the large engine room air lock closed. He scrambled up, ran to it and pulled strongly but it would not budge.

"Dogged shut from the other side! Where is Arnie?"

"With them. I saw him. Two men, carrying him. Both armed. Damn!" Skou had his pocket radio out, switched on, but nothing except static was coming from it.

"Your radio won't work in here," Ove reminded him, bending over the guard. "You're surrounded by metal. Get up on deck. This man is just unconscious, he's been hit by something."

The other two were past him and gone. There was nothing he could do now for the guard. Ove jumped to his feet and ran after them.

Both air-lock doors were open and Skou, on the deck outside, was shouting into his radio. The results were almost instantaneous: he had been prepared for this emergency, too.

All of the shipyard lights came on at once, including searchlights on the walls and the arcs mounted on the cranes and ships under construction. The yard was as light as day. Sirens sounded out in the harbor and searchlights played over the black water as two police boats sealed off that side. Nils scrambled down the ladder and jumped the last few meters to the ground, hit running, around the turn of the hull to the stern where the air lock was. The outer door gaped open and he had a quick glimpse of dark figures. He grabbed the arm of a policeman who ran heavily up.

"Do you have a radio? Fine. Call Skou. Tell him they have headed towards the water. They probably have a boat. *Hold your fire.* There are two men. They are carrying Professor Klein. We can't risk hurting him." The policeman nodded agreement, pulling out his radio, and Nils ran on.

The shipyard was a bedlam. Workers ran for cover while police cars careened in through the gate, horns shrieking. Skou passed on Nils's message, in breathless spurts as he ran. There were guards ahead of him converging on the waterfront and the slipway, where the ribs of a ship under construction stretched rusty fingers towards the sky.

Red flame spurted from behind a stack of hull plates and a guard folded, his hands over his midriff, and collapsed. The others sought cover, raising their guns.

"Don't shoot!" Skou ordered, going on alone. "Get some lights over there."

Someone swung a heavy arclight around, following the direction of

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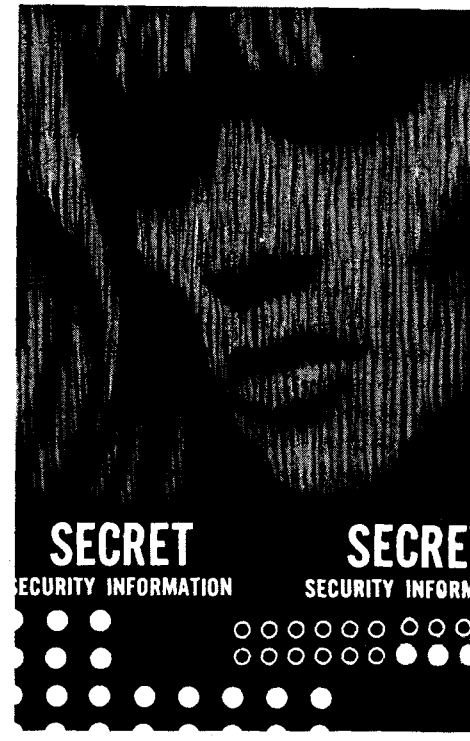

the spotlight on one of the police cars. It burned, bright as daylight, on the spot. Skou ran on, crookedly, alone.

A man, all in black, stood up, shielding his eyes, raising a long-barreled pistol. He fired once, twice, a bullet hit steel next to Skou and whined away, the other tugged at his coat. Skou stopped, raised his own pistol into the air and lowered it slowly onto the target, calm as though he were on the pistol range. The invader fired again and Skou's gun cracked out almost at the same instant, a single shot.

The man jerked, spun about and dropped onto the steel plates, the weapon rattling from his grasp. Skou signaled two of the policemen to examine him and hobbled on, ignoring the huddled shape. A line of guards and police closed in behind him; a patrol boat moved closer to shore, its motor rumbling and its spotlight sweeping the deep shadows of the ways.

"There they are!" someone shouted as the spotlight ceased

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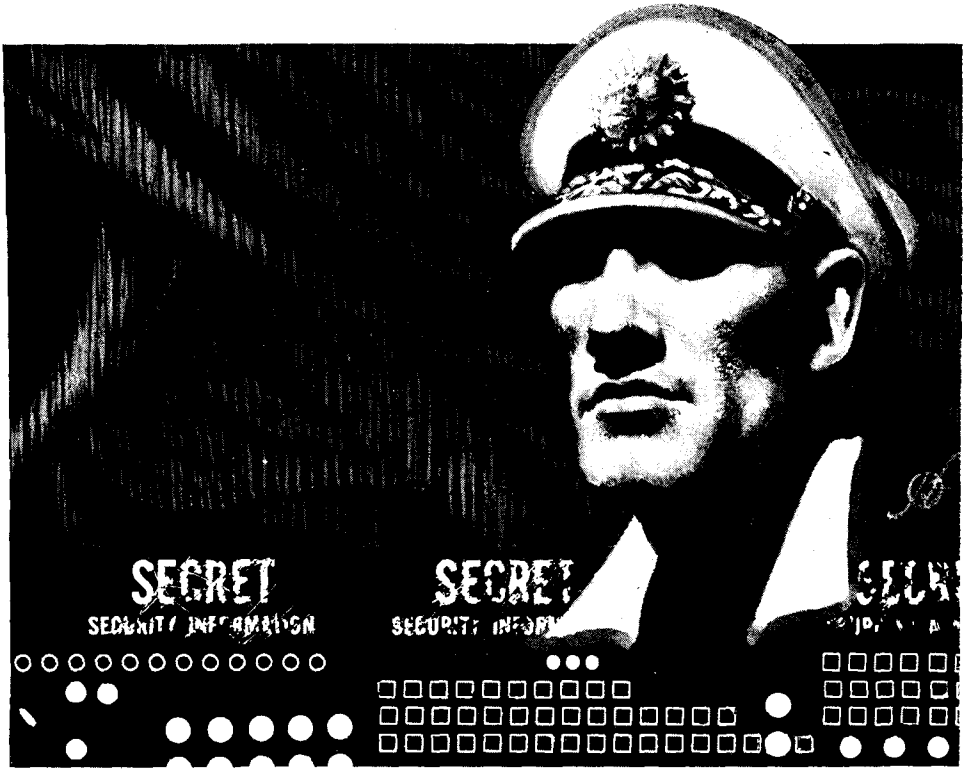

shifting and came to rest. Skou stopped, and halted the others with a signal.

The riveted plates of the keel were a stage, the curved ribs a proscenium, the scene was lit. The drama was one of life and death. A man, in shining black from head to toe, half crouched behind Arnie Klein's slumped form. He supported Arnie with an arm across his chest. His other hand held a gun, the muzzle of which was pressed against Arnie's head. The sirens died, their work done, the alarm given, and a sudden silence fell. In it the man's voice was loud and hoarse, his words clear.

"Don't come here—I kill!"

The words were in English, thickly accented but understandable. There were no movements from the onlookers as he began to drag Arnie's limp form along the keel towards the water's edge.

Nils Hansen stepped from the shadows behind him and reached out a great hand that engulfed the other's, trapping it, pulling the gun

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into the air and away from Arnie's head. The man in black shrieked, in pain or surprise, and the pistol fired, the bullet vanishing into the darkness.

With his free hand Nils pulled Arnie from the other's grasp and, slowly and carefully bent to lay him on the steel plate below. The man he held captive writhed ineffectually against his grip, then began beating at Nils with his fist. Nils ignored him until he straightened up again, seemingly ignorant of the blows striking him. Only then did he reach out and pluck the gun from the other's grasp and hurl it away. And draw his hand back, to bring it down in a quick, open-palmed slap. The man spun half about, dropped, hanging from Nils's unrelenting grasp.

"I want to talk to him!" Skou shouted, hurrying up.

Nils now had the man in both hands, shaking him like a great doll, holding him out to Skou. He was dressed in rubberized black, a frogman's suit, and only his head was uncovered. His skin was sallow, with a thin moustache drawn like a black pencil line on his upper lip. One cheek flared red with the print of a great hand.

For a brief moment the man struggled in Nils's unbreakable grip, looking at the approaching policemen. Then he stopped, realizing perhaps, that there was no escape. There was no more resistance in him. He lifted his hand and chewed his thumbnail, a seemingly infantile gesture.

"Stop him!" Skou shouted, trying to hurry. Too late.

A look of shock, pain, passed over the man's face. His eyes widened and his mouth opened in a soundless scream. He writhed in Nils's hands, his back arching, more and more, impossibly, until he collapsed limply, completely.

"Let him go," Skou said, peeling open one eyelid. "He's dead. Poison in the nail."

"The other one, too," a policeman said. "You shot him in . . ."

"I know where I shot him."

Nils bent over Arnie, who was stirring, rolling his head with his eyes closed. There was a red welt behind his ear, already swollen.

"He seems to be all right," Nils said, looking up. He caught sight of the blood on Skou's pants leg and shoe, dribbling onto the metal plate. "You're hurt!"

"The same leg they aways shoot me in. My target leg. It doesn't matter. It is more important to get the professor to the hospital. What a mess. They've found us, someone. It is going to get much worse from now on."

XV

Sitting in the darkness, on his bridge, in his chair, Nils Hansen tried to picture himself operating these controls of the *Galathea*. Normally not a very imaginative

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man, he could, when he had to, visualize how a machine would operate, how it would behave. He had test piloted almost all the new jets purchased by SAS, as well as tested new and experimental planes for the Air Force. Before flying a plane he would study blueprints and construction, sit in a mockup for simulated flight, talk to the engineers. He would learn all the intricacies of the craft he was to fly, learn everything that he possibly could before that moment when he was committed, he alone, to taking it into the air. He was never bored, never in a hurry. Others grew exasperated at his insistence upon examining every little detail, but he never did. Once airborne he was on his own. The more knowledge he carried aloft with him the better chance he had of a successful flight—and of returning alive.

Now, his particular powers had been taxed to their limit. This craft was so impossibly big, the principles were so new. Yet he had flown *Blæksprutten,* and that experience was the most valuable of all. Remembering the problems, he had worked along with the engineers in laying out the controls and instrumentation. Reaching out he touched the wheel lightly—the same standard wheel, purchased from stock, that was in a Boeing 707 jet. He almost felt right at home. This was connected through the computer to the Daleth drive and would be used for precision maneuvers such as take off and landing. Altimeter, air-speed indicator, true-speed readout, power consumption, his eyes moved from one to the other, unerringly, despite the darkness.

There was a large, pressure-sealed glass port set into the steel wall before him, that now gave a good view of the shipyard and the harbor. Although it was after two in the morning, and Helsingǿr was long asleep, the area on all sides of the shipyard was brightly lit and astir with movement. Police cars cruised slowly along the waterfront and flashed their lights into the narrow side streets. A squad of soldiers moved in loose formation among the buildings. Extra spotlights were mounted above the normal streetlights so the entire area was as bright as day. The motor torpedo boat, *Hejren,* was anchored across the near end of the harbor with its gun turrets manned and trained.

There was the hum of motors as the bridge door slid open, and the radio operator came in, going to his position. Skou was behind him, hobbling on a single crutch. He stood for a moment next to Nils, eyes moving over his posted defenses outside. With a grunt, possibly of approval, he dropped into the second pilot's chair.

"They know we're here," he said. "But that's all they are going to know. How is this tub?"

"Checked, double-checked, and

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a few times after that. I've done what I can and the engineers and inspectors have been over every inch of hull and every piece of equipment. Here are their signed reports." He held up a thick folder of papers. "Anything new on last week's visitors?"

"A blank, all along the line. Frogman equipment bought right here, in Copenhagen. No marks, tags, papers. Their guns were German P-38s, Second World War vintage. Could have come from any place. We thought we had a lead on their fingerprints, but it was a mistaken identification. I checked it myself. Nothing. Two invisible men from nowhere."

"Then you'll never know what country sent them?"

"I don't really care. A wink is as good as a nod. Someone has winked us and, after that dustup, the whole world knows that there is something going on up here. They just don't know what, and I've kept them far enough away so they can't learn more." He leaned forward to read the glowing dial of the clock. "Not too much longer to go. Everything set?"

"All stations manned, ready to go when they give the word. Except for Henning Wilhelmsen. He's lying down or sleeping until I call him. It's his job tonight."

"Better do that now."

Nils took up the phone and dialed Henning's number; it was answered instantly.

"Commander Wilhelmsen here."

"Bridge. Will you report now?"

"On the way!"

"There!" Skou said, pointing to the road at the far end of the harbor where a half-dozen soldiers on motorcycles had appeared. "It's moving like clockwork—and well it better! She has been staying at Fredensborg Castle, twenty minutes away."

Two open trucks, filled with soldiers, came behind the motorcycles, then more motorcycles acting as outriders to a long, black, and exceedingly well polished Rolls Royce. More soldiers followed. As though this appearance had been a signal—and it undoubtedly was—truckloads of troops streamed out of the barracks of Kronborg Castle where they had been waiting in readiness. By the time the convoy and the car they guarded had reached the entrance to the shipyard, a solid cordon of troops surrounded it.

"What about the lights in here?" Nils asked.

"You can turn them on. It's obvious to the whole town now that something is up."

Nils switched on the ultraviolet control board illumination so that all the instruments glowed coldly. Skou rubbed his hands together and smiled. "It's all working by clockwork. Notice—I command no one. All has been arranged. Every spy-tourist in town is trying to see what is happening, but they can't get

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close. In a little while they will be trying to send messages and to leave and will be even less successful. Good Danes are in bed at this hour, they'll not be disturbed. But all the roads are closed, the trains are not running, the phones don't work. Even the bicycle paths are sealed. Every road and track—even the paths through the woods—are guarded."

"Do you have hawks standing by to catch any carrier pigeons?" Nils asked innocently.

"No! By God, should I?" Skou looked worried and chewed at his lip until he saw Nils's smile. "You're only kidding. You shouldn't do that. I'm an old man and who knows, *poof,* my ticker could stop at a sudden shock."

"You'll outlive us all," Henning Wilhelmsen said, coming onto the bridge. He was wearing his best uniform, cap and all, and he saluted Nils. "Reporting for duty, sir."

"Yes, of course," Nils said, and groped under the control panel for his own hat. "Throw Dick Tracy out of your chair there and we'll get started on the pre-launch checklist."

He found the cap and put it on; he felt uncomfortable. He took it off and looked at the dimly seen emblem on the front, the new one with the *Daleth* symbol on a field of stars. With a quick motion he threw the cap back under the controls.

"Remove your cap," he said firmly. "No caps to be worn on the bridge."

Skou stopped at the door and called back. "And thus the first great tradition of the Space Force is born."

"And no civilians on the bridge, either!" Nils called after the retreating, chuckling, figure.

They ran through the list, which ended with calling the crew to their stations. Henning switched on the PA system and his voice boomed the command in every compartment of the ship. Nils looked out of the port, his attention caught by a sudden bustle below. A fork lift was pushing out a prefabricated wooden platform, ready draped with bunting. It was halted just at the curve of the bow and secured in position; men, dragging wires, ran up the stairs on its rear. Everything was still going according to schedule. The phone rang and Henning answered it.

"They're ready with that patch from the microphones now," he told Nils.

"Tell them to stand by. Hook it into the PA after you have made an Alert check on all stations."

The crew was waiting, ready at their stations. They were checked, one by one, while Nils watched the crowd of notables come forward. A military band had appeared and were playing gustily, a thin thread of their music could be heard even through the sealed hull. The crowd

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parted at the stand and a tall, brown-haired woman made her way up the stairs first.

"The Crown Princess Margrethe," Nils said. "You better get that patch connected."

The small platform was soon filled, and the PA system came on in the middle of an official speech. It was astonishingly short—Skou's security regulations must have ordered that—and the band struck up again. Her Royal Highness stepped forward as one of the crewmen on deck lowered a line to the platform, a bottle of champagne dangling from the end. The princess's voice was clear, the words were simple.

"I christen thee *Galathea* . . ."

The sharp crash of the bottle against the steel hull was clearly heard. Unlike an ordinary christening the ship was not launched at once. The officials moved back to a prepared position and the platform was dragged clear. Only then were the launching orders given. The retaining blocks were knocked clear and a sudden shudder passed through the ship.

"All compartments," Nils said into the microphone. "See that your loose equipment is secured as instructed. Now take care of yourselves because there is going to be a slam when we hit the water."

They moved, faster and faster, the dark water rushing towards them. A tremor, more of a lifting surge than a shock, ran through the fabric of the ship as they struck the water. They were slowed and stopped by the weight of the chain drags, then rocked a bit in the waves caused by their own launching. The tugs and service boats closed in.

"Done!" Nils said, relaxing his hands from their tight grip on the edge of the control panel. "Is the launching always this hard on one?"

"Never!" Henning answered. "Most ships aren't more than half-finished when they are launched—and I have never heard of one being launched that was not only ready to cruise but had an entire crew aboard. It's a little shocking."

"Unusual times cause unusual circumstances," Nils said calmly, now that the tension of the launching was over. "Take the wheel. As long as we are seaborne you're in command. But don't take her down like you would one of your subs."

"We cruised on the surface most of the time!" Henning was proud of his seamanship. "Plug me into the command circuit," he called to the radio operator.

While Henning made sure that all of the launching supports had been towed free and that the tugs were in position, Nils checked the stations. There had been no damage; they were not shipping water. They were ready to go.

They could have moved under their own power, but it had been decided that the tugs should warp them free of the harbor first. No

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one knew what kind of handling characteristics this unorthodox ship would have, so the engines would not be started until they were in the unobstructed waters of the Sound. After a brief exchange of sharp, fussy blasts on their whistles, the tugs got under way. As they moved slowly down the harbor, following the torpedo boat that had weighed anchor and preceded them, they had their first clear sight of the area beyond.

"Some secret launching," Henning said, pointing at the crowds that lined the seawall. They were cheering, waving their arms, and the bright patches of Danish flags were to be seen everywhere.

"Everyone in town knew that something was up here. Once we were launched you couldn't stop them from turning out."

The tugs swung a long arc and headed for the harbor entrance. The mole and seawall on either side were black with people, and still more running towards the entrance. As the ship slipped through they waved and shouted, many of them with coats over pajamas, wearing a motley array of fur hats, raincoats, anoraks, anything that could be thrown on quickly. Nils resisted a strong impulse to wave back. Then they were through, away from the lights, into the waters of the Øresund: the first waves broke over the low decks, washing around the boots of the crewmen who tended the lines there.

Well clear of the shore the tugs cast off, tooted farewell and turned about.

"Cast off," Henning said. "Decks cleared and hatches secured."

"You may proceed then," Nils said.

There were a separate set of controls at the second pilot's position, used only for surface navigation. Two great electric motors were mounted on pods secured to the hull of the ship. Only electric cables penetrated the pressure hull, assuring an airtight continuity. Each motor drove a large, six-bladed propeller. There was no rudder: steering was controlled by varying the relative speed of the propellers, which could even be run in opposite directions for sharp turning. Throttles and steering were all controlled from the single position on the bridge, accurate and smooth control being assured by the computer which monitored the entire operation.

Henning eased forward both throttles and *Galathea* came to life. No longer shorebound, no longer at tow, she was a vessel in her own right. Waves broke against the bow, streamed down the sides, then splashed onto the deck as their speed increased. The lights of Helsingør began to fall behind then. A dash of spray hit the port.

"What's our speed?" Nils asked.

"A stupendous six knots. Our hull has all the fine sea-going characteristics of a gravy boat."

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"This will be her first and last ocean cruise so relax." He made a quick calculation. "Slacken off to five knots, that will get us to the harbor at dawn."

"Aye aye, sir."

Their maiden voyage was going more smoothly than anyone had expected. There was some water seepage around one of the hatches, but this was caused by an incorrectly sized gasket and they could fit one of the spares as soon as they docked. In the semidarkness of the bridge Nils crossed his fingers: it should only stay this way.

"Do you want some coffee, Captain?" Henning asked. "I had some made and put in thermos bottles before we shut the kitchen down."

"A good idea—send for it."

A tall seaman, sporting sidewhiskers and a great moustache, brought it a few minutes later, stamping in in his heavy sea boots and saluting broadly.

"Who are you?" Nils asked. He had never seen the man before.

"He's one of the extra deckhands you asked me to get," Henning answered. "They had to be found and cleared, three of them, and they just came aboard this afternoon. Things were pretty busy at the time. Jens here has been trying to volunteer for this assignment for months. He says he has experience with the Daleth drive."

"You what?"

"Yes sir, Captain. I helped weld up the first experimental one. Nearly broke the back of our ship, it did Captain Hougaard is still trying to find someone to sue."

"Well—glad to have you aboard, Jens," Nils said, feeling self-conscious about the nautical terms, though no one else seemed to notice.

Their slow voyage continued. It was less than thirty kilometers by sea from Helsingør to Copenhagen and it was taking them longer than the million kilometer voyage to the Moon. They had no choice. Until the Daleth drive was installed they were nothing more than an underpowered electric tub.

The eastern horizon was gold-barred with dawn when they came to the entrance to the Free Port of Copenhagen. Two tugs, riding the easy swell, were waiting for them. They tied up and, in a reverse of their leave-taking, were eased gently into the Frihavn, to the waiting slip at the Vestbassin.

"That's good timing," Nils said, pointing to the convoy just pulling up on the wharf. "They must have been tracking us all the time. Skou told me he had almost a full division of soldiers employed here. Lining the streets every foot of the way from the Institute. I wish it were all over." He clenched and unclenched his fists, the only sign of tension.

"You and I both. Nothing can go wrong. Too many precautions, but still . . ."

"Still, all of our eggs are in one

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basket. There is the drive," he pointed to the plastic wrapped bulk already being eased from the flatbed truck by the dockside crane. "And the professors will be right there with it. All in one basket. But don't worry, it looks like the entire Danish army is out there. Nothing short of an atom bomb could do anything here today."

"And what is to stop that?" Henning's face was white, strained. "There are a lot of them in this world, aren't there? What is to stop someone who can't get the drive from arranging it so no one can get it? Balance of power . . ."

"Shut up. You have too much imagination." Nils meant to say it kindly, but there was an unexpected harsh edge to his words. They both looked up, starting slightly as a flight of jets, bright in the rising sun, screeched by close overhead.

"Ours," Nils said, smiling.

"I wish they would hurry," Henning answered.

It would take precision work to get the giant Daleth drive swung aboard and mounted, so despite all the advance preparations it seemed to be maddeningly slow. Even as *Galathea* was being securely moored to the dock the large hatch on the stern deck was being unbolted and opened; a large crane bent its steel neck over, ready to lift when it was free. The hatch would be used once only, then welded shut. The great steel plate moved up, turning slowly, and was pulled back to the shore. The moment it was free the other crane was swinging out the tubular bulk of the Daleth drive. Carefully, with measured movements, it vanished through the hatchway.

The phone rang and Nils answered it, listening and nodding. "Right. Take him to my cabin, I'll see him there." He hung up and ignored Henning's lifted eyebrows. "Take over, I won't be long."

An officer in the uniform of *Livgarden,* the Royal Life Guards, was waiting when he came. The man saluted and held out a thick cream colored envelope that had been sealed with red wax. Nils recognized the cipher that had been pressed into the wax.

"I'm to wait for an answer," the officer said.

Nils nodded and tore the envelope open. He read the brief message, then went to his desk. In a holder there was some official ship's stationery, unused until now, that some efficient supply officer had had printed. He took a sheet—this was a fitting first message—and wrote a quick note. He sealed it into an envelope and handed it to the officer.

"I suppose there is no need to address the envelope?" he asked.

"No, sir." The man smiled. "For my own part, for everyone, let me wish you the best of luck. I don't think you have any idea of what the country is feeling today."

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"I think that I am beginning to understand." They saluted—and shook hands.

Back on the bridge, Nils thought of the letter in his safe.

"I suppose that you are not going to tell me?" Henning asked.

"No reason why I should." He winked, then called over to the radioman, the only other person on the bridge. "Neergaard, take a break. I want you back in fifteen minutes."

There was silence until the door had soughed shut.

"It was from the King," Nils said. "The public ceremony for this afternoon was a fake all along. A cover up. They are going to announce it, we are supposed to tie up by Amalienborg Palace—but we are not going to. As soon as we are ready we get out of here—and leave. He wished us luck. Sorry he couldn't be here. Once out of the harbor, the next step will be . . ."

"The Moon!" Henning said, looking out at the welders working on the deck.

XVI

Martha Hansen had trouble sleeping. It wasn't being alone in the empty house that bothered her —that had become a commonplace when Nils was flying. Perhaps she was just too used to having him around the house of late, so that the big double bed seemed empty now that he was gone.

It wasn't that either. Something very important, perhaps dangerous, was happening, and he had not been able to talk to her about it. After all these years she knew him well enough to tell when he was concealing something. Overnight, maybe a few days, he had said, then turned away and switched on the television. It was much more than that, she knew, and the knowledge was keeping her awake. She had dozed off, woke up with a start and had been unable to sleep again after that. Too tired to read, she was too tense to sleep as well, and just tossed and punched her pillow until dawn. Then she gave up. After filling the electric percolator she went and took a shower.

Sipping at the too-hot coffee she tried to find some news on the radio, but there was nothing. Switching to the shortwave band she ran through an incomprehensible lecture in some guttural language, flipped past some Arabic minor key music and finally found the news on the BBC World Service. There was a report on the continuing stalemate in the southeast Asia talks and she poured more coffee—almost dropping the cup when she heard *Copenhagen*.

". . . Incomplete reports, although no official statements have been made at this time. However eye-witness observers say that the city is filled with troops, and there is a great deal of activity along

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the waterfront. Unofficial reports link the Niels Bohr Institute, and speculation is rife that further tests of the so-called Daleth drive may be in progress."

She turned the volume all the way up so she could hear it while she was dressing. What was happening? And, more important, the question she tried to avoid all the time now, how dangerous was it? Since the spies had been killed and Arnie had been hurt she was in continual anticipation of something even worse happening.

Fully dressed, with her gloves on and her car keys already out, she stopped at the doorway. Where was she going and what was she doing? This almost hysterical rushing about suddenly struck her as being foolish in the extreme. It couldn't help Nils in any way. Dropping into a chair in the hall she fought back the strong impulse to burst into tears. The radio still boomed.

". . . And a report just in indicates that the experimental ship, often referred to as a hovercraft, is no longer at the shipyards in Elsinore. It can be speculated that there is some connection between this and the earlier events in Copenhagen . . ."

Martha slammed the door behind her and opened the garage. There was nothing she could do, she knew that, but she did not have to stay at home. Speeding south on Strandvejen, the road was almost deserted at this hour, she felt that she was somehow doing the right thing.

It did not seem that clear once she reached Copenhagen, a maze of closed streets and soldiers with slung rifles. They were very polite, but they would not let her through. Nevertheless she kept trying, probing around the area in the growing traffic, discovering that a great ring seemed to be thrown around the Free Port area. Once she realized this she swung wide, through the narrow back streets, and headed for the waterfront again on the other side of Kastellet, the five-sided, moated castle that formed the southern flank of the harbor. A block from the waterfront she found a place and parked the car. People passed her on foot and she could see more of them ahead near the water's edge.

The wind from the Sound pulled the heat from her body, and there was no way to hide from it. More and more people arrived and the air was alive with rumors as everyone searched the Øresund before them for signs of any unusual activity. Some of the spectators had brought radios but there were no news reports that mentioned the mysterious events in the Frihavn.

One hour passed, and a second, and Martha began to wonder what she was doing here. She was chilled to the bone. The radios blared and a sudden chorus of shushing went up from the groups

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around these radios. Martha tried to get closer, but could not. But she could still make out the gist of the Danish announcement.

The *Galathea,* an official launching . . . ceremony . . . Amalienborg Palace in the afternoon . . . There was more, but that was enough. Tired and chilled she turned to go back to the car. She was certain to be invited to anything public, official. They were probably trying to call her now. Better nap first, then call Ulla Rasmussen to find out what they would be wearing.

A man stood before her, blocking her way.

"You're up early, Martha," Bob Baxter said. "This must be an important day for you." He smiled when he said it, but neither the words nor the smile were real. This was no coincidence, she realized.

"You followed me here. You have been watching my home . . ."

"The street's no place to talk—and you look cold. Why don't we go into this restaurant here. Get some coffee, a bite of breakfast."

"I'm going home," she said, starting around him. He blocked her with his arm.

"You didn't keep that appointment with me. Passport matters can be serious. Now—what do you say we keep this unofficial and sit down for a cup of coffee together. Can't be anything wrong with that?"

"No." She was suddenly very tired. There was no point in irritating the man. A cup of hot coffee would taste good right now. She allowed him to take her arm and open the door of the café.

They sat by the window, with a view of the Sound over the roofs of the parked cars. The heat felt good and she kept her coat on. He draped his over the back of the chair and ordered coffee from the waitress, who understood his English. He did not speak again until she brought the coffee and was out of earshot.

"You have been thinking about what I asked you," Baxter said, without any preamble. She looked into the coffee cup when she answered.

"To tell you the truth, no. There's nothing, really, that I can do to help you."

"I'm the best judge of that. But you would like to help, wouldn't you, Martha?"

"I would like to, of course, but . . ."

"Now that is much more reasonable." She felt trapped by her words: a generalization suddenly turned into a specific promise. "There are no 'buts' to it. And nothing very hard or different for you to do. You have been friendly with Professor Rasmussen's wife, Ulla, lately. Continue that friendship."

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"You *have* been watching me, haven't you?"

He brushed the question aside with his hand as not worth answering. "And you know Arnie Klein as well. He's been to your home a few times. Get to know him better, too. He's a key man in this business."

"Do you want me to sleep with him, too?" she asked, in a sudden surge of anger at herself, this man, the things that were happening. He did not get angry at her, though his face drew up in stern, disapproving lines.

"People have done a lot worse for their country. People have died for our country. I've devoted my life to this work and I have seen them die. So please keep your dirty little Mata Hari jokes to yourself. Or do you want to make jokes about the boys who got tortured and killed fighting the Japs, Koreans, Charley, all of them? Died making the world safe so you could be a free American and live where you like and do what you like. Free. You do believe in America, don't you?"

He brought the challenge out like an oath, laid down on the table between them, waiting to be picked up and sworn to.

"Of course," she finally said, "but . . ."

"There are no *buts* in loyalty. Like honor it is indivisible. You know that your country needs you and you make a free choice. There is no need to take your passport away or coerce you in the many possible ways . . ."

No, she thought, nastily, *then why mention it at all.*

". . . since you are an intelligent woman. You will do nothing dishonorable, I can guarantee that. You will help to right a wrong."

His voice was drowned out as a flight of jet planes tore by low overhead, and he turned his head quickly to look at them. He pointed after them, with a brief, twisted smile.

"Ours," he said. "Do you know what a jet plane costs? We gave them to Denmark. And guns and tanks and ships and all the rest. Do you know that our country paid *fifty percent* of all the costs to rearm the Danes after the war? Oh yes we did, though it is kind of forgotten now. Not that we expected gratitude. Though a little loyalty wouldn't have hurt. Instead, I am afraid that we have a good deal of selfishness. What can tiny Denmark do in this modern world." He drawled the word with more than a little contempt. "They can just be greedy and forget their responsibilities and forget that nothing stays secret very long in these times. Remember the Red spies and the atom bomb? Their spies are at work here, right now. They'll get the Daleth drive. And when they do—that's the end of the world as we know it. We're

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going to be dead, or in chains, and that's all there will be to it."

"It doesn't have to be like that."

"No—because you are going to help. America has been the single bastion of the defense of the free world before, and we are not ashamed to take that role again."

The jets swept by again, circling far out in the Sound. Baxter sipped some of his coffee, then looked at his watch.

"I suppose you will want to go home now and get ready. I imagine that you are invited to the big affair this afternoon for the *Galathea* ship. Your husband must be connected with this project. What does he do?"

There it was, a question she could answer: he must know that from the stricken expression on her face. The silence lengthened.

"Come on, Martha," he said, lightly. "You're not siding with *these* people."

It was said more in humor than in insult, as though the thought were unthinkable: siding with the devil instead of God.

"He is captain of the ship," she said, almost without thinking, choosing the right side. Only afterwards did she tell herself that it would be common knowledge soon, everyone would know it. But not now. Now she had taken a stand.

Baxter did not gloat; he just nodded his head as though what she said was right and natural. He looked out of the window and she saw him start, the first sign of real emotion he had ever expressed. She turned to follow his gaze and found herself suddenly cold, colder than she had been outside.

"That's the *Galathea,*" he said, pointing to the squat shape that had appeared in the Sound outside. She nodded, staring at it. "Good, there's no point in your lying now. We know some things, too. We have high altitude pix of this baby. It was in Elsinore last night, came down here for something, probably the Daleth drive, now going to tie up near the castle. You'll get a closer look at her later. Probably go aboard." He turned his head to stare unwinkingly at her, conveying a message, *You know what to do if that does happen.* It was she who turned away. She was compromised, she knew, she had drawn sides.

She was not exactly sure how it had happened.

The jets screamed low again and there were torpedo boats now visible, boxing in the *Galathea* while she wallowed through the low waves. Ungainly.

"Stopping," Baxter said. "I wonder why, trouble . . ." Then his eyes widened and he half rose from his chair. "No! They're not going to!"

They were. The torpedo boats drew back and the jets thundered away into the distance.

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And light as a balloon the *Galathea* rose from the water. For only a moment she hung there, free of the sea, invisibly borne, then moved upward, faster and faster, accelerating, a vanishing blur that disappeared almost instantly in the clouds.

Martha took her handkerchief out, not knowing whether she wanted to laugh or cry, crumpling it in her hands.

"You see." His voice was contemptuous and seemed to come from a great distance. "They even lie to you. The whole affair with the King was a lie. They are running away, trying tricks."

She stood and left, not wanting to hear any more.

XVII

"I really cannot do it," Arnie said. "There are a number of other people who can do the job just as well, far better in fact. Professor Rasmussen here, for one. He knows everything about the work."

Ove Rasmussen shook his head. "I would if I could, Arnie. But you are the only one who can say what must be said. In fact I'm the one who suggested that you speak."

Arnie was surprised at this, and his eyes almost accused Ove of betrayal. But he said nothing about it. He turned instead to the efficient young man from the Ministry of State who had come to the Moon to arrange all the details.

"I have never spoken on television before," Arnie told him. "Nor am I equipped to lie in public."

"No one would ever ask you to lie, Professor Klein," the efficient young man said, snapping open his attaché case and slipping out a folder. "We are asking you to tell only the truth. Someone else will discuss the situation here, tell all the details, and not lie at all. The most that will be said—or not said—will be an error of omission. The work here at *Månebasen* is not completely finished, and it is no grave crime to suggest that it is. This ship is part of the base now, there are depots outside for the equipment, and construction continues around the clock."

"He's right," Ove said quietly. "The situation is getting worse all the time in Denmark. There was an attack on the atomic institute last night—car full of men, dressed like police. They broke in, shot it out with the troops when they were discovered. Fourteen dead in all."

"Like Israel—the terror raids," Arnie said, mostly to himself, his eyes mirroring a long-remembered pain.

"Not the same at all," Ove insisted, quickly. "You can't hold yourself to blame at all for anything that has happened. But you *can* help stop any further trouble, you realize that?"

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Arnie nodded, silently, looking out of the lounge window. The pitted lunar plain stretched away from the ship, but the view of most of the sky was cut off by the sharply rising lip of a large crater. Closer in, a large, yellow, diesel tractor was digging an immense gouge in the soil, its blue cloud of exhaust vanishing into the vacuum at almost the same instant it appeared. A nest of six large oxygen cylinders were strapped behind the driver.

"Yes, I will do it," Arnie said, and once the decision had been made he dismissed it from his mind. He pointed at the tractor driver, who was dressed in a black and yellow suit with a bubble helmet.

"Any more troubles with suit leaks?" he asked, as the State Ministry man hurried out.

"Little ones, but we watch and keep them patched. We're keeping the suit pressure at five pounds, so there is no real trouble. We should be happy we could get pressure suits at all. I don't know what we would have done if we hadn't been able to buy these from the British, surplus from their scotched space program. Once things are settled the Americans and the Soviets will be falling over each other to supply us with suits for . . . what is the expression?"

"A piece of the action."

"Right. We'll soon have this dug in and completely roofed over, and we'll convert everything to electrical operation so we won't have to keep bringing oxygen cylinders from Earth."

He broke off as the television crews wheeled in their equipment. Lights and cameras were quickly mounted, the microphone cords spread across the floor. The director, a busy man with a pointed beard and dark glasses, shouted instructions continually.

"Could I ask you boys to move," he said to Ove and Arnie, and waved the prop men towards their chairs. The furniture was shoved aside and rearranged, a long table moved over, while the director framed the scene in his hands.

"I want that window off to one side, the speakers below it, mikes on the table, get a carafe of water and some glasses, find something for that blank hunk of wall." He spun on his heel and pointed. "There. That picture of the Moon. Move it over here."

"It's bolted down," someone complained.

"Well unbolt it—that's what you have fat fingers and a little tool kit for." He ran back and looked through the viewer on the camera.

Leif Holm stamped into the room, large as life, wearing the same ancient-cut suit that he had worn in his office in Helsingør.

"Some flight I had in that little *Blæksprutten,*" he said, shaking

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hands firmly with two physicists. "Couldn't even smoke. Nils was afraid I would clog up the air equipment or something." Reminding himself of his forced abstinence, he took his large cigar case from an inner pocket.

"Is Nils here now?" Arnie asked.

"He took off right away," Ove told him. "They're using the ship for a television relay and he is holding position above the horizon."

"Back of the Moon, that's the way," Leif Holm said, clipping off the end of his immense cigar with a cutter hung from his watch chain. "So they can't watch us with their great telescopes."

"I haven't had a chance to congratulate you yet," Ove said.

"Very kind, thank you. Minister for Space. It has a good sound to it. I also don't have to worry what my predecessors did—since I don't have any."

"If you will please take your places we can have the briefing now," the State Ministry man said, hurrying in. He was beginning to sweat. Arnie and Leif Holm sat behind the table, and someone went running for an ash tray. "Here are the main points we want to mention." He laid the stapled sheets in front of both of them. "I know you have been briefed, but these will be of help in any case. Minister Holm, you will make your opening statements. Then the journalists on Earth will ask questions. The technical ones will be answered by Professor Klein."

"Who are the journalists?" Arnie asked. "From what countries?"

"Top people. A tough crowd. The Soviets and Americans of course, and the major European countries. The other countries have been pooled and have elected their own representatives. There are about twenty-five in all."

"Israel?"

"Yes. They insisted on having a representative of their own. All things considered, you know, we agreed."

"The link is open," the director called out. "Stand by. Three minutes. We are tied into Eurovision, by satellite to the Americas and Asia. Top viewing. Just watch the monitor and you will know when you are on.

A television set with a large screen was placed under camera One. The picture was adequate, the scene tense. The Danish announcer was finishing the introduction, in English, the language that would be used for this broadcast.

". . . From all over the world, gathered here in Copenhagen today, to talk to them on the Moon. It must be remembered that it takes radio waves nearly two seconds to reach the Moon, and the same amount of time to return, so there will be this amount of time

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between question and reply during the latter half of this session. We will now switch you over to the Danish Moon Station, to Mr. Leif Holm, the Minister for Space."

The red light glowed on camera Two and they appeared on the monitor screen. Leif Holm carefully tapped his ash into the ash tray and inhaled from his cigar, so that his first words were accompanied by a generous cloud of smoke.

"I am speaking from the Moon where Denmark has established a base for research and commercial development of the Daleth drive that has permitted these flights. The construction is in its earliest stages—you can see the operation continuing behind me through the window—and will continue until there is a small city here. For the beginning this base will be dedicated to scientific research, to continue the development of the Daleth drive that has made all this possible. In one sense this portion of the work is already completed because all"—he leaned forward to stare grimly at the camera—"*all* of the Daleth project is now at this base. Professor Klein, sitting on my right, is here to direct the research. He has brought his assistants with him, all of this equipment, records, everything to do with this project." He leaned back and drew on his cigar again before continuing.

"You will excuse my insistence on this fact, but I wish to make it clear. Denmark in the past months, has suffered many acts of violence within her borders. Crimes have been committed. People have been killed. It is sad to admit but there are national powers on Earth that will go to any lengths to obtain information about the Daleth drive. I speak to them now, and I beg forgiveness in advance from all of the peace-loving countries of the world, the overwhelming majority. You can stop now. Leave. There is nothing for you to steal. We in Denmark intend to develop the Daleth effect for the greater benefit of mankind. Not for violence."

He stopped, almost glaring at the screen, then leaned back. Arnie was staring straight ahead, expressionless, as he had done during the entire talk.

"We will now answer any specific questions that you may have."

The scene on the monitor changed to the auditorium in Copenhagen where the press representatives waited. They sat on chairs, in neat rows, in attitudes of silent attention, while slow seconds slipped by. It was disconcerting to realize that radio waves, even at the speed of light, took measurable seconds to cross the great distance between the Moon and Earth. In an abrupt, galvanic, change the scene altered as a num-

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ber of the newsmen jumped to their feet, clamoring for attention. One of them was recognized and the cameras focused on him, a burly man with a great shock of hair. The white letters UNITED STATES OF AMERICA appeared below him on the screen.

"Can you tell us who is making these alleged attacks in Denmark? These so called 'national powers', to use your own term, in the plural, could, by inference, mean any country. Therefore all the countries stand condemned by innuendo. This is highly unfair."

"I am sorry that you find it so," Holm responded calmly. "But it is the truth. Attacks have occurred. People have died. It is unimportant to go into the question further. Surely the world press must have more relevant questions than this one."

Before the angry reporter could answer, another man was recognized, the representative of the Soviet Union who, if he was also angry, managed to conceal it very well.

"Of course the Union of Soviet Socialist Republics joins in with all the peace-loving nations of the world to condemn the acts of aggression that have occurred in Denmark." He exchanged a look of mutual hatred with the American reporter, then went on. "A more important question would be—what does your country intend to do with this Daleth drive?"

"We intend to exploit it commercially," Holm answered after the mandatory seconds had passed. "In the same way that Danish shipping opened up the commercial possibilities of East Asia during the last century. A company has been formed, *Det Forenede Rumskibsselskab,* The United Spaceship Company, a partnership between the government and private industry. We mean to open up the Moon and the planets. At this time there are, of course, no specific plans, but we are sure that great opportunities lie ahead. Raw materials, research, tourism—who knows where it will end. We, in Denmark, are most enthusiastic because at this time we see no end to the good that will come from it."

"Good for Denmark," the Russian said, before another questioner could be recognized. "Does not this monopoly mean that you will deprive the rest of the world of a fair share in the venture? Should you not, as a socialist country, share your discovery in the true socialist spirit?"

Leif Holm nodded solemn agreement. "Though many of our public institutions are socialistic, enough of our private ones are sufficiently capitalistic to keep us from giving away what you have called a 'monopoly'. It is a monopoly only in the sense that we shall operate the Daleth ships, at a fair profit, that will open up the

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solar system to all the countries of Earth. We will try not to be greedy. We have already entered into an agreement with other Scandinavian countries for the manufacture of the ships. Our belief is that this invention will benefit all of mankind and we consider it our duty to implement that belief."

The representative of the Israeli press was recognized from the crowd of excited, waving men, and he addressed the camera. He had a detached, scholarly manner, with a tendency to look over the top of his rimless glasses, but Arnie recognized him as one of the shrewdest commentators that country had.

"If this discovery is of such a great benefit to mankind—I would like to ask why it has not been made available to the entire world? My question is directed to Professor Klein."

Arnie had short seconds to prepare his answer—but he had been expecting the question. He looked directly into the camera and spoke slowly and clearly.

"The Daleth effect is more than a means of propulsion. It could be turned to destructive uses with ease. A country with the will to conquer the world *could* conquer the world through utilization of this effect. Or destroy the world in the attempt."

"Could you elaborate? I am anxious to discover how this specie of rocketship engine could do all you say."

He smiled, but Arnie knew better than to believe the smile. They both knew more about the history of the Daleth effect than they were admitting aloud.

"It can do more because it is *not* a kind of rocket engine. It is a new principle. It can be applied to lift a small ship—or a large ship. Or even an entire concrete and steel fortress mounting the heaviest cannon, and to take this anywhere in the world in a matter of minutes. It could hang in space, on top of the gravity well, immune from any retaliation by rockets, even atom bomb equipped rockets, and could destroy any target it wished with bombs or shells. Or, if that image is not horrific enough for you, the Daleth effect could be made to pick up great boulders—or even small mountains—from here on the Moon, and drop them on Earth. There is no limit to the imaginable destruction."

"And you feel that the other countries of the world would use the Daleth effect for destruction if they had it?" The other reporters were silent for the moment, recognizing the underplay in the dialog between the two men.

"You know they would," Arnie snapped back. "Since when has the horrible potential of a weapon stopped it from being used? The cultures who have practiced geno-

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cide, used poison gas and atom bombs in warfare, will stop at nothing."

"And you felt that Israel would do these things? I understand you first developed the Daleth effect in Israel and took it from this country."

Arnie had been expecting this, but he still wilted visibly beneath the blow. When he spoke again his voice was so low that the engineers had to turn up the volume of their transmission.

"I did not wish to see Israel forced to choose between her survival and the unleashing of great evil upon the world. At first I considered destroying my papers, until I realized that there was a very good chance that someone else might reach the same conclusions, and make the same discovery that I did. I was forced to come to a decision—and I did." He was angry now, defiant in his words.

"To the best of my knowledge I did the right thing, and I would do it over again if I were forced to. I brought my discovery to Denmark because, as much as I love Israel, it is a country at war, that might eventually be forced to use the Daleth effect for war. It was my belief that if I found a way for my work to benefit all mankind, Israel would benefit too. Benefit first, for all that I owe her. But Denmark—I know this country, I was born here—could never be tempted into war by aggression. This is the country that twice almost voted unilateral disarmament for itself. In a world of tigers they wished to go unarmed! They have faith, I have faith in them. I could be wrong but, God help me, I have done the best I could . . ."

His voice choked with emotion and he looked away from the camera: the director instantly switched the scene back to Earth. After the moments of waiting an Indian reporter was recognized, the representative of an Asiatic reporter pool.

"Would the Minister of Space be so kind as to elaborate upon the benefits to accrue from the utilization of this discovery and to suggest, if possible, what specific benefits there might be for the countries of southern Asia?"

"I can do that," Holm said, and looked down at his cigar, surprised to see that he had completely forgotten it, and that it had gone out.

XVIII

"It's a perfect day for it," Martha Hansen said, rubbing out the cigarette in the ash tray, then clasping her hands together to conceal how excited she was.

"It certainly is, it certainly is," Skou said, his nose pushed forward, looking around as though sniffing out trouble. "Will you excuse me a moment?"

He was gone before Martha

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could answer, with his two shadows trailing after him. She shook another cigarette out of the pack and lighted it; at this rate she would have a pack smoked before noon. She twisted about, with her legs up on the couch, smoothing down her skirt. Had she worn the right thing? The knitted dress was always Nils's favorite. How long had it been? She turned quickly when she heard a car—but it was only the traffic passing on Strandvejen. The sun burned down on a scene of green grass, tall trees, and the bright blue waters of the Sound beyond. White sails leaned away from the wind and a bee-buzzing motorboat drew a pale line of wake towards Sweden. A June Sunday with the sun shining, Denmark could be heaven, and Nils was coming home! How many months . . .

It was practically a convoy, three large black cars, pulling into the drive and stopping before the house. A police car and another car parked at the curb beyond them. They were here. She ran, getting there ahead of Skou, throwing the door wide.

"Martha!" he shouted, dropping his bag and sweeping her to him, kissing her so hard she had no breath, right there on the porch. She managed to push free, laughing, when she realized that a small circle of men was waiting patiently for them to finish.

"I'm sorry, please come in," she said, aware that her hair was mussed and her lipstick probably smeared, and not giving a damn. "Arnie, it is wonderful to see you, come in please." Then they were in the living room, just the three of them, with the sound of heavy feet stamping through the rest of the house.

"I'm sorry about the honor guard," Nils said. "But it was the only way we could get Arnie back to Earth for a holiday. It was time for us all to have a break, and I think Arnie most of all. Watchdog Skou agreed to it as long as Arnie stayed with us, and Skou could make all the security arrangements he wanted to."

"Thank you for having me," Arnie said, leaning back wearily in the upholstered chair. He looked weary. "I am sorry to impose . . ."

"Don't be silly! If you say another word I shall throw you out and make you stay at the Mission Hotel which, as you know, is absolutely nonalcoholic. Here you get drinks. To celebrate. What would you like?" She stood and opened the bar.

"My arms feel heavy as lead," Nils said, scowling as he moved his hand up and down. "I've barely enough strength to lift a glass to my mouth. That gravity, one-sixth of Earth's, it ruins the muscles."

"Poor dear! Shall I bottle feed you? I've made a pitcher of Martinis—all right?"

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"Fine. And remind me, I have a bottle of Bombay gin in my suitcase for you. We have it tax-free on the Moon, since they have decided to call it a free-port area until someone comes up with a better idea. The customs men, very generous, allow us to bring one bottle back. An 800,000 kilometer round trip to save twenty-five kroner in duty. The world's mad." He took a deep drag on the chilled drink and sighed with pleasure.

Arnie sipped at his. "I hope you will excuse all the guards and fuss, but they treat me like a national treasure—"

"As you damn well are!" Nils broke in. "With all the Daleth equipment on the Moon, you are worth a billion kroner on the hoof to any country with the money to buy you. I wish I weren't so patriotic. I would sell you to the highest bidder and retire to Bali for life."

Arnie smiled, almost relaxing. "They had a conspiracy. The doctors, Skou, your husband, all of them. They thought if they made an armed fort of your home that I could come here. The weather could not be better."

"Sailing weather," Nils said, and drained his drink. "Where's the boat?"

"In the water, like you asked, tied up on the south side of the harbor."

"What a day for sailing! Why don't we all go down there . . . no, damn, Arnie's supposed to stay in the house."

"You two go, I will be fine right here," Arnie insisted. "I will get some sun in the garden, that is what Nils promised me."

"No such thing," Martha said. "Nils is going to the harbor and get all hot and tarry. He never sails the boat, just caulks seams and things. Let him get it out of his system while we loaf in the garden."

"Well . . . if you don't mind?" Nils was already leaning towards the door.

"Go on," Martha laughed. "Just come back in time for dinner."

"I'll find Skou and tell him where I'm going. Not that they care about me, since all I know about a Daleth drive is how to push the buttons."

Martha had to find him his work trousers, then a paint-stained shirt, then his swim trunks, before he was ready and slammed out of the house. Arnie had gone to his room to change and, at the sight of all the delicious sunlight, Martha put on a bathing suit, too. All Danes are sun-worshipers on a day like this. Arnie was on a lounge on the patio, and she pulled the other one up next to him.

"Wonderful," he said. "I did not realize how much we miss color and being out of doors." The shadow of a gull slid across the

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grass and up the high wooden fence. The air was still. Someone laughed, far away, and there was the distinct *plock-plock* of a tennis ball being played.

"How is the work going? Or as much of it as you can tell me."

"The only secret is the drive. For the rest it is like running a steamship company and opening up the wild west at the same time. Did you read about our Mars visit?"

"Yes, I was so jealous. When do you start selling passenger tickets?"

"Very soon. And you will have the very first one. There really are plans being made along those lines. In any case, those surface veins of uranium on Mars made the DFRS stock soar tremendously on the world markets. Money is being poured into the super-liner that the Swedes are building, mostly for cargo, but with plenty of cabins for passengers later. We will lift her by tug to the Moon and put the drive in there. The base is almost a city now, with machine shops and assembly plants. We do almost all of the manufacturing of the Daleth units there, except for standard electronics components from here. It is all going so well, no one can complain." He looked around for a piece of wood to touch, and found none among the chrome and plastic garden furniture.

"Shall I bring you a board or something?" Martha asked, and they both laughed. "Or better yet bring you a cold drink."

"Yes, please, if you will join me."

"Try and stop me. Gin and tonic since we already started on gin."

She came back with the drinks on a tray, silently on her bare feet, and Arnie started when he saw her.

"I didn't mean to surprise you," she said, handing him a glass.

"Please do not blame yourself. I know that it is I. There has been a great deal of work and tension. So it is really very good to be here. In fact it is almost as hot as Israel."

"Do you miss Israel?" she asked, then, quickly, said, "I'm sorry. I know that it's none of my business."

The smile was gone, his face set. "Yes, I miss the country. My friends, the life there. But I think that I would do the entire thing over again in the same manner if I were given a second chance."

"I don't mean to pry . . ."

"No, Martha, it is perfectly all right. It is on my mind a good deal of the time. Traitor, or hero? I myself would rather die than cause injury to Israel. Yet I had a letter, in Hebrew, no signature. 'What would Esther Bar-Giora have thought?' it said."

"Your wife?"

"Yes. She looked very much like you. The same kind of hair

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and . . ." he glanced at her figure, more flesh than fabric in the diminutive bathing suit, and looked away and coughed. "The, what you might call, same sort of build. But dark, tanned all the time. A sabra—born and grew up in Israel. One of my graduate students. She married the professor, she used to always say." His eyes had a distant, haunted look. "She was killed in a terror raid." He sipped his drink. In the silence that followed the distant shouting of children could be heard.

"But do not let me sound too gloomy, Martha. It is too nice an afternoon. I would like to have known who sent that letter. I wanted to tell whoever it was, that I think Esther would have been angry at me, but she would have understood. And in the end she might even have agreed with me. There must be a time when the issue of all mankind should come ahead of our concern with our own country. You should know what I mean. Born an American, now a Dane, a real citizen of the world."

"No, not really." She laughed to cover her confusion. "I mean I am married to a Dane, but I am still an American citizen, passport and all." Now why had she told him about that?

"Papers," he said, lifting his hand in a gesture of dismissal. "Meaningless. We are what we think we are. Our deeds reflect our ethos. I am stating it badly. I never did well in philosophy, or in anything other than physics and mathematics. I even failed stinks once, forgot a retort on the burner and let it explode. And I never thought much about anything other than my work—and Esther, of course.

"People used to call me a dry stick, and they were right. I never played cards, nothing like that. But I could see and I could think. And watch the attempts to destroy Israel. And when the idea of the Daleth drive came closer and closer to reality I thought more and more about what should be done with it. I remembered Nobel and his million dollar guilty-conscience awards. I thought of the atomic scientists who had been certified or who had committed suicide. Why, I kept thinking, can't something be done *before* the discovery is revealed? Can I not turn it to the benefit of mankind instead of the destruction? The thought stayed with me, and I could not get rid of it, and—in the end—I had to act upon it.

"I did not think that it would be easy, but I never thought things would turn out like this with every country in the world sending spies to Denmark. And the things they have called me!" He smiled wryly. "People like to blame scientists for all the ills of the world. They say that we are responsible. Yet at the same time they insist that we turn

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over to them any deadly knowledge as soon as it is discovered. So one time a scientist—myself—accepts the responsibility and tries to do something about the knowledge and look at the hot water I am in!" The smile vanished as quickly as it had come. "I never thought that it would be easy, but frankly I never thought it would be this hard . . ."

Arnie broke off and sipped at his drink. "You must excuse me, I am talking too much. The company of men. A woman, a sympathetic ear, and you see what happens. A joke." He smiled a twisted grin.

"No, never!" She leaned over, impulsively, and took his hand. "A woman would go mad if she couldn't tell her troubles to someone. I think that's the trouble with men. They hold it all in until they explode and then go out and kill someone."

"Yes, of course, thank you. Thank you very much." He patted her hand clumsily and lay back heavily, eyes closed. A fat bumblebee hummed industriously around the hollyhock that climbed the side of the house, the only sound now in the still of the afternoon.

"Den er fin med kompasset,
Slå rommen i glasset . . ."

Nils sang happily in a loud monotone, scraping away at the paint blister on the cockpit cover. The harbor was deserted; on a summer Sunday like this every boat was out in the Sound. He would be too, as soon as he finished this job. He hated to see any imperfections on his *Måge,* so he ended up doing much more painting and polishing than sailing. Well, that was fun, too. He had muscles and he liked to use them. Though they would ache tomorrow after the months of enervating lunar gravity. He was barefoot, stripped to his swim trunks, sweating greatly and enjoying himself tremendously. Singing so loud that he was unaware of the quiet footsteps on the dock behind him.

"That's a terrible noise you are making," the voice said.

"Inger!" He sat up and wiped his hands on the rag. "Do you make a habit of sneaking up on me? And what the devil are you doing here?"

"Accident, if you can call fate that. I'm with friends from the Malamö Yacht Club, we're just out for the day." She pointed at a large cabin cruiser on the other side of the harbor. "We tied up here for lunch—and some drinks of course, you know how thirsty we Swedes get. They all went into the kro. I have to join them."

"Not before I give you a drink —I have some bottles of beer in a bucket. My but you look good."

She did indeed. Inger Ahlqvist. Six feet of honey-tanned blond, in a bikini so small that it was hardly noticeable.

"You shouldn't walk around like

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that in public," he said. "It's just criminal. And torture to a poor guy who has been playing Man in the Moon for so long that he has forgotten what a girl looks like."

"They look like me," she said, and laughed. "Come on, give me that beer so I can go get my lunch. Sailing is hungry work. How is the Moon?"

"Indescribable. But you'll be there one of these days soon. DFRS will need hostesses and we'll bribe you away from SAS." He jumped down into the cockpit, landing heavier than he realized, still not adjusted to the change in gravity, and opened the cabin door. "I'll get one for myself, too. Isn't this the weather? What have you been doing?"

He went to the far end where he had the green bottles, in a bucket of water with chunks of ice. She stepped into the cockpit and leaned down to talk to him.

"The same old round. Still fun, but don't think I haven't envied you all this Moon and Mars travel. Do you mean what you said about the hostess thing?"

"Of course." He clicked the caps off both bottles in an opener fixed to the bulkhead. "No details yet, secret and all that, but there are definite plans for passenger runs in the future. There have to be. Do you realize that we can reach the Moon base faster than the regular flight can go from Kastrup to New York? Here."

He handed her the bottle and she stepped forward to get it.

"*Skål.*"

She drank deeply, lowered the bottle with a contented sigh, her lips full and damp. Just inches away.

His bottle dropped to the deck, rolled, spilling out a pale stream of foam. His arms were around her.

Her bottle dropped, rolled, clattered against the other.

Arnie's mouth was slightly open, and his head had fallen over to one side; he was breathing deeply and regularly. Martha rose slowly so as not to disturb him. If she stayed in the still heat of the garden any longer she would fall asleep too, and she did not want to do that. She went into the house and slipped into a light beach jacket, then knocked on Skou's door. He opened it, wearing a pair of earphones, and waved her in. He had converted the back bedroom into a command post, and there was a table full of communications equipment. He issued instructions and switched off.

"I'm going to the harbor for a bit," she told him. "Professor Klein is asleep in the back yard and I didn't want to bother him."

"That's our job, watching him. I'll tell him where you went if he wakes up."

It was only a five-minute walk. Martha went along the beach, carrying her sandals. The sand was

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warm and felt good between her toes. She stayed away from the water which she knew, even now, would be far too cold for swimming. The air was still, almost soundless, except for the *flut-flutting* of a helicopter overhead. Probably part of the guard for Arnie. There were a number of extra cars and trucks parked in her neighborhood, and she knew that some of the neighbors had unexpected guests. That poor, tired little man was being guarded like a national treasure. Well he probably was one. She waved to a party of friends, sunning themselves on the beach, and climbed the stone steps to the top of the seawall. The harbor was almost empty of boats, and there was *Måge*—but Nils was nowhere to be seen.

Perhaps he had gone across the road to the kro for a drink? No, he usually stopped there on the way to get some bottles of beer. Where could he be—below deck probably.

She was about to call to him when she saw the two beer bottles on the cockpit floor, and next to it, trailing through the half-open door, a piece of blue fabric. The halter top of a bikini.

In that single instant, with heart-stopping clarity, she knew what she would see if she looked into the cabin. As though she had lived this instant before, sometime, and had buried the memory which was now surfacing. Calmly she stepped forward to the edge of the dock and leaned far out, holding onto the bollard anchored there. Through the door she could now see the starboard bunk and Nils's broad back.

With a muffled sob she straightened up, feeling a hot wave of anger sweeping over her, reddening her skin.

Ready to jump into the boat, ready to hurt, bite, tear, she did not want to hold back. But there was shouting, a loud noise. She looked up.

"The sail is stuck!" someone shouted in Danish from the single masted yacht that was rushing in towards the dock.

There was a brief glimpse of a man wrestling with the fouled rigging, a woman, pushing at the tiller, screeching something at him, and children grabbing for ropes and falling over each other. At any other time it would have been funny. They were coming on, still too fast, and the woman jammed the tiller hard over.

Instead of striking bow on, the boat turned, hitting a glancing blow to the pilings, bouncing away. One of the small children fell off the cabin roof onto the deck and began to shriek in fright. The sail came down in a jumble and the man fought with it.

Then they lost way and bobbed to a stop. Tragedy averted. Someone even began to laugh. It had

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taken only seconds. Martha started forward again—then hesitated. In those brief instants everything had changed. She was still as angry, though the anger was choked within her. The little yacht was tying up a few feet away. Could she, coldly now, enter that cabin, scream at them with these others here?

With a gasp, something between pain and hatred, she turned, fled, running, slowing down. Anger, terrible anger burning her. How could he have done this! She gasped again.

Only when she reached the front door of her home did she realize that she was still carrying her sandals and that the soles of her feet were sore from the concrete sidewalk. Shaking, she put them on and remembered that she had no key. She raised her fist, but before she could knock Skou opened the door for her.

"Watchfulness is our password," he said, letting her in, and then closing and locking the door behind her.

She nodded, went by him, unseeing. Watchfulness, that was very funny, it should be her password, too. She didn't want to talk to him, to see anyone. She went past quickly and on into the bathroom. Anger was burning her now, tightening her throat, impotent anger that she could do nothing about. She shouldn't have run away! But what else could she have done? With a sob of rage she turned the cold water fully on, plunged her arms into it, spashed water onto her burning face.

She ran her fingers through her hair, unable to face herself in the mirror. If he was not ashamed, she was. She stroked at her hair violently with the brush. Married men did things like this, she knew that, a lot of them in Denmark. But not Nils. Why not Nils? What could she do about him?

With this thought she had a sudden image of him coming home, here, acting as if nothing had happened. He would do that—and what would *she* do? Could she tell him? Did she want him? Yes. *No!* She wanted to hurt him just the way he had hurt her. What he had done was unforgivable.

Her throat was tight and she had the sensation that she would break into tears at any moment, and she did not want to.

She turned quickly, wanting to get away from her reflected image. As she did she saw the little spiral-bound notebook on top of the laundry container, and she picked it up because it did not belong there. When she opened it, automatically, wondering what to do with it, she saw that the pages were covered with rows of neat calculations, more strangely shaped symbols than numbers. She closed it quickly and went to her room, shutting the door and pressing her

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back to it, the notebook held tight in her hand.

If emotion can be said to replace the logical order of rational thinking, this was surely one of the times. Baxter had scarcely bothered her of late, but she was not really thinking about Baxter. Or about America and Denmark, or loyalty or patriotism. She was thinking about Nils and what she had seen and, perhaps, though she was not aware of it, she wanted to hurt him in the way he had hurt her.

It was all quite easy to do. Locking the door behind her, Martha went to her bureau and took the camera out of the drawer. She had put film in it just yesterday, getting ready for Nils's homecoming, fast color film to make a permanent record of this holiday. There was a patch of sunlight on the rug by the bed, streaming in the open window. She put the notebook on the floor and opened it to the first page. When she sat on the edge of the bed above it and looked through the viewfinder it was just right. Just one meter, the closest she could take a picture without blurring it. The image of the pages was sharp and clear and the camera automatically set the exposure.

Click.

She advanced the film, bent over to turn the page, then braced her elbows on her knees again.

There were still ten frames left when she finished the last page. So she took pictures of the back and front covers because she hated to waste film. Then she realized that this was just being foolish, so she closed the camera case and put it back into the drawer. She took the notebook and unlocked the door and went out, and met Arnie coming up the stairs.

"Martha," he said, blinking in the darkness after the glare outside. "I woke up suddenly and realized that I had misplaced my notebook . . ."

She shrank back slightly, her hand—and the notebook—pressed tightly to her.

"There it is!" he said, and pointed. He smiled. "How nice of you to find it for me."

"I was taking it to your room," she said in a voice that sounded shrill and artificial, but he did not seem to notice. She handed him the notebook.

"And right you were, too. If Skou found it lying around, he would probably have me returned to the Moon at once. Thank you. I shall just lock it in my case so I will not be this foolish again. I am sorry I fell asleep like that, some guest! But I feel much better for it. It has been a wonderful day."

She nodded slow agreement as he went into his room.

TO BE CONCLUDED

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TO BUY A BOOK

One question is repeated over and over again in letters to Analog or to this department: "Where can I buy the books you recommend?" I am sorry to say that I don't answer, for two reasons. First, this department is only a spare-time occupation and for the last two years and more my full-time job has often as not called for twelve hours or so a day, leaving too little time to read the current crop of books, let alone keep up my correspondence. Second, I usually don't know. I have the same problem myself.

If a reader is in a large city like New York or Chicago, I don't really worry about the poor soul. Anyone who can't find a book—or, at least, a bookstore—in those places just isn't trying. Except that I, as one of the best customers of the best bookstore in Pittsburgh, am finding that I can't get new science fiction hardbacks either. In a number of cases, a new book that I ordered before publication didn't show up until months later, after a paperback edition was out.

Paperbacks are still another problem. In some stores, in some cities, old titles are kept on the rack month after month. If you can find one of those places, the books may still be there when you hear about them here. Elsewhere, a store which has decided to devote only a limited space to paperbacks will ship ten old books back to the distributor or publisher for every ten new ones that come in . . . and there are twenty or thirty new science-fiction and fantasy paperbacks every month, let alone all the better-selling varieties.

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What we are all up against is cost accounting. Stores can prove to you that they are losing money when they order fewer than some break-even number of books. It costs X dollars—even with computerized bookkeeping and maybe *especially* with computers—to do the paperwork on an order. There is very little difference between the cost of ordering one book for you and a hundred books, but the store can make a profit on the hundred books and it can't on one. Especially the kind of books you and I order—history and archeology and science fiction.

But that's just the store. Some will take the loss and order for you; some won't. Even when they do place your order with the publisher, *his* cost accountants may not let him fill it. It costs him Y dollars to do the paperwork involved in shipping out that one book . . . and that may be more than the price of the book. (The laboratory supply house for which I work has found that it loses money on *any* order for less than ten dollars worth of test tubes, chemicals and such.) I am told that some publishers won't fill orders for fewer than five or ten copies of a given book—which means the store is stuck with four to nine copies of some kooky SF title only you want.

This is also why—as some of you tell me—your order isn't acknowledged when you send it directly to the publisher. You may not get your money back, either. That's expensive paperwork, too—maybe more expensive than handling an order, because somebody has to think about it. But, if a publisher cashes your check and doesn't send you the book scream to the postmaster. You'll get your book. (Mostly they simply throw away order, check and all.)

Paperbacks are a special case. If you really read the paperbacks you do buy on a newsstand, you should know that most or all publishers will send you books directly—for ten cents or more extra. A sixty-cent book will cost you seventy cents by mail. Pocket Books charges fifteen cents extra, being the granddaddy of them all. Belmont, bless 'em, gives you a *discount* when you order five or more books at a time. Some of the others drop the "service" charge when you order four or more. If you don't send the extra dime or so, you don't get your book.

This happens to me, too, since only about half of the publishers whose books you see mentioned here send copies for review. I have to find out about the others and run them down. And I am now doing this by ordering from one of the only two mail-order science-fiction booksellers I know who have new books as well as used ones. They are: F & SF Book Co., P.O. Box 415, Staten Island, New York 10302 and Stephen's Book

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Service, 67 Third Avenue, New York 10003. Their prices are the same that I give here, but Dick Witter at F&SF has a minimum order of $2.00 (I don't know about Steve Takacs in New York). Dick also gives you nice discounts on large orders.

If you want to wait and try to buy used SF books at lower prices, there are many SF specialty houses run by fans who can oblige you. It wouldn't be fair to list the few whose addresses I have and omit others I don't know, who may have even better bargains. However, several of them advertise regularly in the classified ads sections of *F&SF* and *Amazing*, an also in a kind of fanzine called *Fantasy Collector,* published by the active Burroughs fan, Camille Cazadessus, Jr., P.O. Box 550, Evergreen, Colorado 80439. This is a monthly, with good bibliographical articles plus ads from collectors all over the world who have science fiction or fantasy to sell or swap. I'm told that some SF collectors get all their books through these ads. Caz will send you a sample copy for a dime.

But you want to go down to the corner and find any book I mention right on the shelf where you can read it for free, or at the very least look at it? In New York . . . Chicago . . . maybe San Francisco or Los Angeles . . . you may be able to do it, but I don't know where. There are fewer and fewer bookstores in the country, and most of them carry smaller and smaller stocks. For the reasons I've explained, they don't *want* single orders for kooky books. If you can find one, make friends with the owner and the staff—cherish them—they're rare.

ADDENDUM

P.S. After the above diatribe went to the magazine, I saw an article in the August 25th issue of *Publishers' Weekly* in which a Canadian bookseller, M. G. Hurtig of Edmonton, talks about some of these same "special order" problems from the bookstore's point of view. The difference is that Mr. Hurtig has done something about it—and so far as I know, no U.S. bookseller has.

Book Order Service of Canada, 10451 Jasper Avenue, Edmonton 14, Alberta has been set up specifically to fill those crazy single orders the bookstores don't want. Naturally, they'd like to get orders for more than one at a time. They charge twenty-five cents a book over the list price, plus whatever postage is required to get the book to you. They say they're not limiting their service to Canada, but I'd recommend that U.S. readers drop them a postcard and get a few more details.

Edmonton is out on the Canadian frontier where they grow big ideas and make 'em work. Let's hope BOSC does just that!

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NOSTALGIC NOTE

"Star Trek" will apparently go down in history as the most-loved of science fictional TV programs. I am not a TV watcher and saw only two programs at friends' homes, but it was easy to see why the program had so many intense partisans. For nostalgia's sake, you may want to consult "The Making of Star Trek," a Ballantine paperback (No. 73004; 95 cents) compiled by Stephen E. Whitfield and Gene Roddenberry, the program's producer. You should also take steps not to miss "Star Trek Concordance," edited by Bjo Trimble and compiled by Dorothy Jones with yeoman assistance from various members, friends and associates of Los Angeles fandom. George Barr's portraits of the crew of the *Enterprise* are, needless to say, exceptionally good, but a number of other fan artists have done good jobs, too. (I do take violent exception to the alleged "Folsom Point" on page 43, but this may be the fault of the program. The Folsom flint chippers, far from producing crude spearheads like the thing shown, were experts whose work has only recently been duplicated after long study.) A $5.00 price for an 84-page offset-printed pamphlet may be too rich for your blood, but the publisher, "Mathom House," is probably losing money. Order from the publisher, 417 North Kenmore Avenue, Los Angeles, California 90004.

P.S. You probably have seen the third collection of very short stories written by James Blish from "Star Trek" scripts. "Star Trek 3" (Bantam Books No. F4371; 50¢) has seven stories, including three that were nominated for "Best Drama" Hugo awards: "The Trouble with Tribbles," "The Doomsday Machine," and "Amok Time." (The California Concordance has synopses of all of them.)

DAUGHTERS OF EARTH

By Judith Merril • Doubleday & Co., Garden City, N.Y. • 1969 • 256 pp. • $4.95

I suppose there is a new generation of science-fiction readers who know Judith Merril only as the editor of an annual, and increasingly controversial, anthology and as High Priestess of the "new thing" in SF—now defined as "speculative fabulation" instead of science fiction, and incorporating any and all forms of experimental writing. (Cassettes to come with Merril anthologies any day now.)

These Johnny-come-latelies just *don't know* that Judith Merril is also, or has been, one of the best science-fiction writers we have had . . . never very prolific, but never anything but worth reading. Here, belatedly, are three of her short novels to show what she could do when she wanted to: "Project

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Nursemaid," from a 1955 *Fantasy & Science Fiction;* "Daughters of Earth" from the 1952 collection, "Petrified Planet;" and "Homecalling" from a 1956 *Science Fiction Stories*. Of the three, the first and last are the shortest and best.

"Project Nursemaid" went into Groff Conklin's "Six Great Short SF Novels," and it belonged there. I don't know why it hasn't been reprinted more often. It is the kind of story that should have been published in one of the "mainline" magazines instead of the stuff they did run in the name of science fiction—an intensely real, intensely human story of a secret project to bring children up to live in space, and what it does in human terms to the mothers who must give up their children and the man who must make the project work.

"Daughters of Earth" is, unfortunately, a message piece and a spectacle, following the generations of women who send their daughters out into space. If Miss Merril had not been writing it to order, for a specific book with a specific theme, it would have been better, but her chronicle needs the elbow room of one of the huge post-war historical novels.

"Homecalling" is another unique story which emphasizes how much very good science fiction appeared in the minor magazines and was lost there. Two small children are cast away on a planet dominated by an ant-like race. Little by little each group comes to recognize and accept the other as "people." It's warm and beautifully done.

I don't suppose any of these stories was even nominated for a "Hugo" at the time they were published. They weren't gadgety or gimmicky enough. If they were new now, two of the three would certainly be in the short list.

A SPECTER IS HAUNTING TEXAS

By Fritz Leiber • Walker & Co., New York • 1969 • 245 pp. • $4.95

If you've tagged Fritz Leiber as a writer who does only weirdies, or sword-and-sorcery like the tales about Fafhrd and the Grey Mouser, forget it! Better yet, let this book show you what he can do to bring lively characters on-stage in a lively plot.

The story was serialized in *Galaxy* in 1968 and is the first original hardback in the new Walker list. It is Leiber-as-Heinlein, but totally unlike Heinlein.

Christopher Crockett La Cruz is a "Thin" from Circumluna. He was born and has been brought up in free fall, where gross muscles have no function but the special body training of the stage can lead to amazing muscular development. When he comes to Earth, his body is slung from a special titanium exoskeleton with motor-activated mechanical "muscles" of its own—without it he cannot even sit up, let alone walk or fight Texans his

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own size and three times his weight.

For "Scully" (for "Skullface") finds that North America, from Guatemala to the Arctic, *is* Texas. After the Third World War, Texans simply took over the North American continent, except for Black enclaves in Florida and California and a Russian bridgehead remaining in Alaska. Biochemical treatments have made "real" Texans into eight-foot giants and their Mexican slaves into four-foot dwarfs, who have a tradition that Death, a living skeleton, will some day set them free.

So here comes Scully in his invisible armor, looking like a skeleton and with a great actor's ability to dramatize any situation. He is on the track of an ancestral fortune, but bad luck or finaglement lands him in Dallas instead of Yellowknife and in no time he is up to his Adam's apple in plots and counterplots, assassination and revolution, with two determined women fighting over him and the Texas Rangers hot on his trail.

I don't know whether Fritz Leiber will ever dare show his face in Texas again. See what you think.

THE GOLDEN ENEMY

By Alexander Key • Westminster Press, Philadelphia • 1969 • 176 pp. • $3.95

Alexander Key has done several good science-fiction stories for the 12-and-up ages. They have been—those I've seen—mainly in the vein of Zenna Henderson's stories about "The People": young refugees living among us. One, "The Forgotten Door," has been reprinted by Scholastic Book Services as a paperback; you'll find the schools know about it.

"The Golden Enemy" has a more familiar ring to it. The world has nearly destroyed itself with nuclear warfare. The remnants of mankind are leading a strange life outside the blasted zone. They don't have wheels, but they do have broken down air cars fueled by solar energy. They till the soil, rather clumsily, and herd telepathic goats, but don't eat meat. (Could *you* kill a goat that could talk to you?)

Then a gigantic mutant bear comes out of the radioactive wastelands to destroy Man and everything he has made. The world is threatened by terrible heat and cold, by storms and earthquakes. And somehow, in spite of what the Elders of the Five Communities say, Boy Jaime thinks he can communicate with the bear and straighten things out.

Try a youngster on this. It will set him up for stronger stuff.

UP THE LINE

By Robert Silverberg • Ballantine Books, N.Y. • No. 01680 • 250 pp. • 75¢

Bob Silverberg would make a tremendous Time Courier—maybe almost as good as that reprobate, Themistoklis Metaxas, who takes a

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ISAAC ASIMOV

is one of the world's most famous science-fiction writers. He has also written books on astronomy, anatomy, robots, mathematics, physics, chemistry, biology, words, the Greek myths, and the Bible. His new book — 100th in a long line of best sellers — contains selections from the first 99.

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competent hand in arranging the fortunes of young Judson Elliott in old Byzantium. I don't think I've enjoyed a time-travel story as much since L. Sprague de Camp's "Lest Darkness Fall"—just reissued as Pyramid No. X-2056.

If you think you've read the book as the recent *Amazing* serial, by the way, you'll find that the magazine version was substantially watered down for "family magazine" consumption. It's not that Silverberg is trying to write "dirty" science fiction, but Byzantium was, on occasion, a brutal and bawdy place, and the pivot on which the plot spins is young Elliott's problem of falling hopelessly in love with his nth great grandmother and in the course of his temporary unsanity clashing head-on with most of the basic temporal paradoxes. By the time he has duplicated and triplicated himself, while hunting for a runaway time-tourist hidden somewhere in the centuries, the plot is as involved as a plate of spaghetti.

For the purely technical-minded, who couldn't care less about the way a book can make the past come alive, "Up the Line" also offers as fine an exposition of the problems of the time travel as I have seen anywhere. I wonder whether Silverberg's time theory can't be combined with John Brunner's "Timescope" mechanism to open whole new areas of a venerable theme.

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brass tacks

Dear Mr. Campbell:

As usual I enjoyed the stories in Analog. However, I'd like to note something about Harry Harrison's "Pressure." I've seen two or three models of the atmospheres of giant planets, and, as far as I can tell, there is no way the atmosphere of Saturn could be as deep as he had it. Unless extremely high lower-atmospheric temperatures are supposed, it would be very difficult for Saturn to have an atmosphere even one thousand kilometers deep.

All things being equal, planets with low mass will have deeper atmospheres than planets with high mass, although the atmospheres of low-mass planets will be thinner (less dense) than the atmospheres of high-mass planets. Of course all things aren't equal. Large planets have more material that can be used as atmosphere. But, the full effect of the added material can't be felt because of the high gravity which compresses the atmosphere, keeping it shallow, and producing high pressure which causes liquefaction of the lower layers, making it even shallower.

Regarding riots and such: By chance I've been on the outskirts of two "riots." One, a reportedly large "race riot," happened when an amusement park was temporarily forced to close its gates because of overcrowding, naturally resulting in a mild fracas at the gates. The other, supposedly a student riot, existed only in the minds of reporters. I was there and nothing at all happened.

A few months ago I saw an article about the kind of students that participated in a riot at one university. I can't be more specific because I've lost the article. Almost all departments supplied rioters. It's true the "hard" science and engineering departments supplied less than their share, but one department did not supply a single person; the history department. It is probably possible to tell the quality of history departments by the lack of history majors in riots.

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Better take another look at the gas-giant planet models! Saturn has an average density less than water, despite an immense mass (94 times Earth's) and a consequent immense gravity well.

Obviously, the planet cannot be made up of rocks and metals as is Earth; it can't even be made up of water—or even oil, which is denser than Saturn.

Solution seems to be: A gas above its critical point cannot be liquefied, no matter what pressure is imposed. Nor can its density be increased beyond that of the substance in a solid state (though it is still a gas!). Thus Hydrogen and Helium, both of which remain gaseous at Saturn's temperature, must exist in that atmosphere as gases compressed to ultimate density. But since helium reaches a density of only 0.18 or so, while hydrogen's maximum is about 0.09, even Saturn's 0.67 density can be accounted for. It does have a rock-and-metal core, no doubt, but overlain with an immensely deep atmosphere of hydrogen, helium, and traces of methane and ammonia. Under the pressures existent at the lower part of that atmosphere, hydrogen and ammonia both exist as metals. *Metallic hydrogen can't be created here on Earth, because we can't reach the necessary pressure, but even in that state it would have a density well under 0.2 (Ammonia, NH_3, under the conditions on Jupiter and Saturn, combines with hydrogen to form* ammonium *metal, NH_4. On Earth, ammonium exists only temporarily as an alloy, or as compounds such as ammonium hydroxide.)*

Only on the basis of an immensely deep atmosphere could the low density of Saturn and Jupiter be accounted for.

And the stupendous pressures Harry was talking about definitely are probable in Saturn's stupendous gas envelope.

Dear Mr. Campbell:

The question of Lunar Nomenclature is handled by Commission 17 of the International Astronomical Union. Its president at the meeting in Prague in June, 1967, was Dr. D. H. Menzel, Harvard College Observatory and Smithsonian Astrophysical Observatory, Cambridge, Mass., 02138. I only know Dr. Menzel slightly. He would probably be the best place to seek information.

Lunar nomenclature got in such a mess that in 1939 the Historical Section of the British Astronomical Society put out a remarkable pamphlet entitled "Who's Who on the Moon." A lot of the principal craters were named after people who had been completely forgotten! The "Who's Who" contains an authoritative list of 609 personal names with biographies of lunar crater names.

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According to the IAU report of 1967 on "Lunar Nomenclature:"

"The enormous amount of new data related to the mapping of lunar craters, obtained from the space programs of the U.S.A. and the U.S.S.R. necessitate a complete review of the problem of nomenclature of various lunar features. Recommendations made by special committees of the National Academies of the U.S.A. and U.S.S.R. furnish a starting point for consideration of the problem by the Subcommittee on Lunar Nomenclature of Commission 17 of the IAU under the chairmanship of Z. Kopal. As a result of correspondence undertaken prior to and meetings held during the General Assembly of the IAU in Prague, recommendations will be made to the General Assembly concerning nomenclature for features of the reverse side of the Moon and also of special features on the visible surface.

"A poll of the membership of Commission 17, undertaken by its president, indicates that the majority favors extension of the present system of nomenclature to the reverse side of the Moon, with craters named for deceased scientists, with special attention to astronomers."

According to my map of the moon put out by the National Geographic Society, craters have already been named after Joliot-Curie, Maxwell, Edison, Lomonosov, Goddard, Einstein, Tsiǫlkovsky, and Jules Verne.

Everyone whom I have contacted has been most enthusiastic about naming a crater after Ley. Don't see how there can be any objection. I think proper procedure is to make a strong recommendation to Commission 17.

It is a good idea to follow the custom initiated by Riccioli in 1653 of grouping together those who were alike in their studies. Thus it would seem appropriate to choose for Ley some crater near that of Jules Verne in longitude 148° East, 36° South, on the lunar far side.

This is a project in which all science fiction and space enthusiasts can participate. Discussion and eventual outcome should be most interesting.

ROBERT S. RICHARDSON

If Tsiǫlkovsky is already official—craters Ley, Oberth and Goddard (the real pioneers of space flight) should form a pattern! Tsiǫlkovsky worked out the theory of rockets in space, Oberth was one of the first to "sell" the idea by popularizing it, Goddard and Ley were early practical engineers, with Ley doing a better job of getting acceptance of the ideas to the public.

Sir:

Damn it! Campbell. You just had to follow that precise editorial with a *free* advertisement for one of the sacredest cows in our culture. A

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good $12,000 college education.

What this country needs is about 40,000,000 fewer kids aiming for college, a good $1,000 college education, and turning over the entire vast socialist empire of public education to old-fashioned, outcome-oriented, produce or die, free enterprise.

I am in the business of turning Tribesmen and Barbarians into Citizens. That is, I run a residential school for difficult teenagers (also known as a residential treatment center, or a "psychiatric hospital," depending on the approving agency). I transform both types into individuals who believe that words like integrity, honor, patriotism, honesty, privacy, and rights have some objective, sharable, useful meaning, and who put them to work. After many years of working with migrants, slum families, upper and upper-middle class families, and with brats from all kinds of families I am convinced that if there is any one single force grinding this country into splinters it is the university and certification system.

Take a single example, dropouts. *Everyone* knows it is a *good thing* for dropouts to go back to school. Except that for at least forty years the facts say that dropouts commit more crimes *before* they drop out than after. The facts also say that kids commit more crimes on school nights than on weekends and holidays (unlike adults entirely). The facts can also provide some identical slums, identical, that is in every respect but that in which the schools are run, *and the amount of youth crime*. Schools, in America, are the single largest institution, employing the most people, having the largest capital worth, and are incredibly more homogenous than industry, business, churches, the Jaycees or any other institution, club or conglomeration you want to name. They have our kids from 6 to 21 in almost a majority of cases—and after nearly 70 years of universal, free, compulsory public education (invented not by the U.S., but by the Sumerians and run just about as they ran it), we have overwhelming evidence that the traditional use of such schooling has been effectively served. The first free, universal, compulsory education in the Western World was in Prussia, the second in Calvin's Geneva. It has always been an instrument of close authoritarian control and nationalism—a means of processing Citizens into Barbarians. It sure as hell is working in the U.S.

Take a whole host of school assumptions:

1. kids should start school at age six,
2. they should go to classes about 20-30 in size,
3. they should go for about 6 hours a day,
4. they should go for 12 years to school,

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5. they should go to college for four years,

6. going faster will give them social maladjustment,

7. a number or letter ranking by a teacher is useful,

8. if they don't have 16 years of education they can do practically nothing,

9. it is possible to "certify" for complex, subjective, rapidly changing professions;

10. if you are not "certified" you are not competent.

Every single one of these assumptions is not only wrong, every single one is harmful. Most of them got their start in Sumer, and can be found explicated in the Babylonian Talmud—for instance, the average (and accreditation standard) size of the classroom (and therefore teacher/pupil ratio) is based on the wonderfully scientific principle that the Sumerian clay brick would sustain only a certain load which limited the size of rooms. The Talmud tells us that when the class load goes much over 20 the teacher should have an aide—good AFT material. But Lancaster showed, from 1780-1840 that kids living in real slums (New York and London of those days *really* had ghettos) could be taught so effectively he was accused of witchcraft in a ratio of ONE TEACHER TO ONE THOUSAND STUDENTS, ALL IN ONE ROOM AT ONE TIME!!!

Pressey researched the issue of accelerating kids in school for about 50 years—he showed that the sooner a child gets out of high school (all other things being equal) the better he did in college, the more clubs he was president of, the more extracurricular activities he led, the better his grades, et cetera, et cetera, and the sooner he got out of college the more money he made, or the more books he wrote, or the more innovations he created, et cetera, et cetera. There really ought to be a law of compulsory stopping school.

As our nearby GE recruiter says, "I don't care what your bachelor's degree is in, if you have one I know you are trainable." All a BA does is tell an employer that you won't drop out, that you will accept years of irrelevant, demeaning, boring, *wrong*, garbage and persevere. That you are obedient, and obedient, not as a freely choosing citizen, but as a Barbarian who needs the authority of cops on the corner to refrain from doing in your neighbor.

In fifty years we have nearly succeeded in Mandarinizing America. The Mandarins did show that if you made the price of nearly all power and authority a long, tedious, irrelevant education, you got relatively stable, i.e., stagnant, government. You got neither good government, nor progress. Next time your electrician comes in ask him if he is certified. And remember that in World War II, when it al-

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most counted, we trained effective electricians for subs and other novel environments in six weeks.

Want to increase crime? Want to increase the number of valueless kids, angrily wandering about idly destroying things till the nearest Leader shows up? Just keep supporting our *marvelous* education system. Bah!

GEORGE VON HILSHEIMER
Box 606,
Orange City, Florida

There's more than one side to every argument (not necessarily only Two!) and we've been getting only one set of assumptions!

Dear Mr. Campbell:

In Brass Tacks for August, you ask why the professional Liberal radicals who moan over the suffering Vietnamese do not want to take the chance to help them as medics, et cetera.

The answer is simple to nausea—it would futz up their nice, neat, rigid propaganda image of the terrible-horrible-awful-imperialist-fascist aggressors.

Take the case of court-martialed Captain Levy, which raised so much foofaraw. He refused to train Special Forces medics in the use of *healing medicine*. Relief of suffering, and all the fluff so dear to the heart of humanitarians.

The reason he gave, was that the Green Beret medics would use these techniques as "political medicine" in Vietnamese villages. Translated into plain English, this means that he was afraid that some poor-misguided Vietnamese might feel grateful to a horrible-terrible-imperialist Special Forces medic for treating him.

Captain Levy is so concerned about the welfare of the Vietnamese that he would rather see them die than feel grateful to an American.

As for Walter Trench's "great many people there who cared deeply about, and had been working many months, for a candidate committed to ending the war"—said candidate asked said great many people to stay away from Chicago. *He* knew that the Ruddites would be moving heaven and earth to invent trouble.

And it should be obvious to anyone with a mind instead of a collection of clichés that none of "the battle of Chicago"—or, for that matter, any of the "free expression" which is destroying the country—would have happened if there had been no cameras for the Ruddites to perform in front of. In these circumstances, the police can definitely not be blamed for "restricting" television coverage. They should have banned it altogether—then there would have been absolutely no trouble at all.

WILLIAM LINDEN

I keep wondering what the world would be like if people started thinking with facts, and forgot all the propaganda slogans.

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"RACIAL" TENSIONS
continued from page 7

When they did return to Palestine, and reconstituted Israel, they brought a philosophy, a metaphysics, an outlook on life that was totally alien to their cousins, the Arabs. The Jews applied the philosophy of modern technology to the problems of desert living—they learned how to grow crops in sand and gravel watered with salt water. They worked with the brine of the Dead Sea to establish a viable chemical industry. The Jews' attitude toward water, its use, its potentials, and the way it should be distributed were violently at odds with the ancient—and still traditional!—Arab attitudes. Their attitudes toward women, toward what constitutes "manly honor," toward a thousand things that make up daily living, were basically different.

There's no difference of skin color, no difference of racial stock—but a deep difference of philosophy toward the Laws of Things. Religion in the formal sense is a relatively minor outgrowth of that difference. The Orthodox Jew and the Reformed Jew have very different formal religious beliefs—but they have very similar basic philosophy. They both appreciate the modern world and its values.

The Arabs do not. They cling to the desert-dweller philosophy of Muhammad—and to do that, they must have a desert in which to practice that philosophy. It won't work in a modern industrial system.

The problem, in each of the areas of violence and conflict, is one of philosophies—plus one special philosophical tenet. That crucial and deadly philosophical tenet is ". . . and *no* other system of beliefs can be tolerated!"

Usually, the violence and turmoil actually stem from the fact that *economically*, one philosophy works and generates wealth, comfort, and stable growth, while the other—when directly forced into competition—proves unsuccessful. In this sense, the unsuccessful philosophy truly cannot tolerate the successful one. The human beings trapped in that philosophy find themselves falling behind, and shortly see that they are being "unfairly" discriminated against, since the economic wealth of the area is accumulating in the hands of the other group.

Naturally, their desire is to pass laws that will "equalize" things—i.e., change the situation to one in which their philosophy of life—though they don't think in those terms!—will be more successful than the now-hated philosophy They have.

To the "deprived," this seems to be simply demanding that things

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be made "fair" so that everyone has "an equal chance." That They who have garnered all that wealth should share it with Us. Just because They happened to be lucky is no reason why We should be unfairly deprived . . .

In essence, when one's deeply believed and beloved theory proves wrong, the first desire is to change the Universe so the Theory works. The last and least desirable answer always appears to be that of changing the Theory to fit the Universe.

The human reaction to Us who do change the theory to fit the realities is that "he's a despicable opportunist—a traitor to Our People who has sold out Honesty, Truth and Justice to join Them! He's a cowardly villain, a servile, sniveling rat who's sold out his own soul and self for profit!"

Consider the professional criminal who decides to quit the rackets, and go straight. His ex pals' opinion of his actions is frequently expressed in murderous outrage.

The resultant problems are enormously complex—and, so far as I've been able to observe, have been studied *as such* by neither philosophers, metaphysicians, sociologists or psychologists.

And for some strange reason, the problems of "racial tensions" remain unsolved, too.

Psychologists like to do experiments in animal psychology, and draw conclusions which seem to have some bearing on human behavior.

O.K.—let's use some animal psychology experiments for our own analysis of "racial" tensions.

Item: It's a thoroughly observed and researched fact that a chimpanzee has much greater intelligence than a dog. His brain is larger and more complex than the dog's. His problem-solving ability is considerably greater.

BUT—chimpanzees cannot learn to understand English, nor can they learn to speak it meaningfully.

Dogs can and do. Oh, not at a full human level, of course; usually a highly educated dog has a vocabulary—understanding—of about 300-400 words, and those that have been taught to speak English have a vocabulary of about fifteen to twenty-five words.

But chimpanzees can't learn even the beginnings of speech.

For 200,000 generations or so, men have been selectively breeding dogs to be more useful and cooperative—and that meant having "sense enough to do what they're told." That is, they were selectively bred to understand human language.

Experimental psychologists have shown, rather completely to their surprise, and quite accidentally, that some *breeds* of dogs have a conscience, while other *breeds* have little or none. And again, there's a very strong indication

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that the characteristic is the result of selective breeding.

Ornithologists have done research that pretty clearly shows that migratory birds perform their remarkable long-distance flights from area A to area B, thousands of miles away, by using celestial navigation based on star patterns. Different breeds of birds migrate to and from different areas —but all those tested show strong evidence that it's a matter of instinctive knowledge of star patterns in the night skies.

This is pretty clear evidence that genetic information can and does include *patterns of social behavior.* Language-learning ability—conscience—celestial navigation—all involving social behavior. And all demonstrably genetic.

If this be true for sexually reproduced mammals, and birds, can we have any right to say "This doesn't apply to Man, of course. All of Man's behavior is purely learned, and not at all genetic!"

Well, Man is, of course, different—but he's not *that* different, it seems to me. I think Man can, like any other higher mammal, be selectively bred for basic social behavior characteristics. And that he always has been, ever since societies and cultures came into existence *because of that fact.*

Until Man separated from the other primates on the sole, critical basis of ability-to-learn-to-talk, which we now know is a *genetic* characteristic, societies could not exist. Therefore societies exist only because of a genetic characteristic of Man.

And since societies became established, they've acted as selective-breeding mechanisms—without being consciously aware of that fact.

Each human society has its own basic philosophy, its viewpoint and pattern of beliefs on what is Good and Right and what is Wrong and Evil. A man who, by chance of genes, has an internal pattern that matches that pattern feels at home, comfortable, and happy. He can work effectively, putting his energies wholeheartedly into fulfilling that pattern, which is innate in him, and in the culture around him. But a man whose innate patterns of behavior are at odds with the culture around him is, like the Ugly Duckling of fable, genetically predisposed to behavior at odds with the culture. He'll be constantly finding his energies dissipated in conflicts with his neighbors, and constantly rebuffed and rejected by those neighbors. He works unhappily and at low efficiency. He finds prospective mates hard to attract, and if he does get one, she will probably be an outcast too, and most likely she won't actually match his off-beat characteristics but have her own differences. Any children produced will be handicapped from the start, and being in a low economic

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bracket—inevitable when the wage-earner is working unhappily and inefficiently!—will have poor diet, poor health, and poor medical attention.

The culture isn't being cruel consciously; it's just that this man doesn't understand how to be happy, and is insistent on destroying himself. They know this is true, because they—who have innate behavior patterns that match the culture—find the world pleasant, busy, and rewarding.

The net resultant is, however, that the culture selectively breeds toward a type which has innate behavior patterns that match its beliefs. The culture then—quite without conscious planning—develops its own special breed of human being.

And in that special sense—*which has nothing whatsoever to do with skin color*—the violence and disruption of the civil wars *is* "racial" tension.

Now note carefully an additional factor inherent in the observed data from animal experiments. *Intelligence has nothing to do with social behavior patterns.*

The dog can learn to understand human language. (Like children, they can learn German, English, Tibetan or Eskimo with equal facility.) He is nowhere near as intelligent as the chimpanzee—but his social behavior patterns are enormously more suitable to social living. The more highly developed working dogs—Shetland collie, retrievers, German Shepherds, et cetera—have a highly developed conscience. The chimpanzee has effectively none.

In human beings we find much the same non-correlated characteristics. There are medium grade morons who are completely honest, trustworthy, reliable and conscientious men; given suitable jobs they work well, happily, and efficiently. It's been shown, for instance, that a medium-high grade moron makes a far better professional long-haul driver than does a man of high I.Q. The moron can be relied on to devote his attention to the business in hand; the genius is too busy thinking to keep track of the traffic around him.

Moreover, many a highly intelligent man has demonstrated that he completely lacks conscience, and is 100% dishonest, untrustworthy, and dangerous at any time his intelligence suggests there's a way he can get away with it. Many a shyster lawyer belongs in that group.

The essence of cultural selective breeding is to apply pressures—up to and including death by torture—to discourage individuals with characteristics which do not match the philosophy—the metaphysical concepts—of that culture. Most cultures are satisfied if the unwanted individual simply moves out and stays out; others insist

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that he conform or die, so that the cultural "secrets" won't escape from the enclave.

In a highly complex cultural system, such as that in the United States, there are scores of subcultural groups, which allow individuals to move from one to another until he finds one in which he fits fairly well, and can operate efficiently and happily.

However, there is no longer any cultural sub-group which is free to operate efficiently and happily as warrior-barbarians. If the "thing" he wants to do is to be a warrior-barbarian—he cannot "do his thing" in the United States efficiently and happily. The result is that individuals with the innate behavior pattern appropriate to, and desired in, a warrior-barbarian society, is going to be suppressed, frustrated, and attacked by the U.S. culture. He is being forcefully prevented from doing as his innate behavior patterns insist.

You're apt to find him in the militant groups—whether Black Panther or American Nazi, he's the same behavior-pattern type, and however deep their surface disagreement, they are indeed brothers under the skin.

In Ireland, it's been the warrior-barbarian types at last free to "do their thing" in revolt against a half-century of cultural suppression; the Catholic militants and the Protestant militants are, indeed, brothers under the skin. And they have been happily, enthusiastically, efficiently fulfilling their innate patterns.

A skier knows he risks his neck and limbs—and loves the thrill. If he does get ruined, he feels, at least he'll have *lived* while he was alive! Whether it's skiing, parachute-jumping, mountain-climbing, or rioting, the same essential human attitude exists. The willingness to take a risk for a sense of fulfillment is an important and valuable characteristic. It underlies the philosophy of the men who sit on top of 3.5 kilotons of explosive power for a flight to the Moon, and under the behavior of the barbarian-militants that riot in the streets.

But there's no necessary correlation between that characteristic and good sense. It can be applied through willingness to undertake risks for high achievement in lunar exploration—or through sheer stupidity to "high achievement" of a violent, soul-satisfying riot.

To the militant, "soul-satisfying" *is* rioting and warfare.

It used to be a socially useful characteristic; that's what produced the warriors that defended the cities against the attacking nomads and pirates.

Perhaps Mack Reynolds was right; we need organized "fracas" setups so the warrior-barbarian types can kill themselves off happily and efficiently doing "their thing." ■ The Editor.

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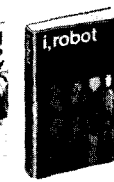

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